The Builder.

VOL. XLIV. No. 2096. SATURDAY, APRIL 7, 1883.

ILLUSTRATIONS.

Church at Graaff-Reinet, South Africa.—Mr. J. R. Nichols, Architect 446
The Chapter-house of the Cathedral of St. Mary of Lincoln 448, 453
Monument to Alexandre Dumas, Place Malesherbes, Paris.—M. Gustave Doré, Sculptor 450
Mural Monuments in Breda Cathedral 451
St. Matthew's Church, Bayswater.—Mr. John Johnson, Architect 455

CONTENTS.

Egyptian Art 435
Islington and the Metropolitan Board of Works 437
Primæval British Architecture 438
Use and Abuse of our Highways 439
The Decoration of the Central Hall, Houses of Parliament 440
The Society of British Artists 440
French and Flemish Exhibition 441
Tapestries of Petrarch's Triumphs 441
The Restoration of Spalato Cathedral 442
Measures against Scaffold Accidents 443
The Sanitary Condition of Lübeck 443
The Berlin Hygienic Exhibition 443
The Palace of Justice at Hamburg 444
The Munich Art Exhibition 444
St. Matthew's, Bayswater 444
Chapter-house, Lincoln Cathedral 444
Church, Graaff-Reinet, South Africa 444
The Opening of the Wellesley Bridge, Limerick 444
Monument to Alexandre Dumas, Paris 451
Monuments at Breda 451
British Archæological Association 457
The Berlin Bourse 457
Foreign Exhibitions 457
Foreign Competitions 457
A Gigantic Tunnel 457
Lighting Street Lamps by Electricity 457
Leadenhall New Market and its Surroundings 458
Lincoln's-Inn Chapel 458
A New Prison for Bristol 458
Age of Timber 458
Archæological Societies 458
Parliamentary Jottings 458
From Scotland 458
An Appeal from Art Students 459
Building Patent Record 459
Burnley 459
Leicester 459
Edinburgh Architectural Association 460
Epsom Town-hall 460
Amber 460
Smoke Abatement Committee 460
Action by a Builder against a Solicitor: Curtis v. Reep 461
Steven v. Richardson 461
"Architectural Improvements in Fore-street" 461
Dissenting Church-Building News 461
Books: Kelly's Directory of the Building Trades; Kelly's Directory of the Engineers; Eger's Technologisches Wörterbuch in englischer und deutscher Sprache 461
Variorum 461
The Building Trades Exhibition at the Agricultural Hall 465
Miscellanea 462

Egyptian Art.

THE history of Egyptian art, its rise and progress, has been so often treated in its breadth and length, and its various details, that the principal novelty on the subject is the array of new facts and examples discovered by the excavations of Mariette Pacha. The text which accompanies the plates of M. Prisse had already pointed out the chief new details in the older monuments of Gizeh. Of the two most ancient nations of the world, whose arts have been handed down from their earliest period,—Babylonia and Egypt,—the valley of the Nile has preserved the grandest and most important remains, those of Babylonia being of smaller size, inferior in art and execution, and of a lower scale of art, and almost destitute of beauty. It is as yet an unsolved problem if the arts commenced in Babylonia or Egypt, but the palm of merit must be conceded to Egypt. There alone was the feeling of art predominant even in the very hieroglyphical inscriptions, while those of Babylon at the earliest period had assumed a form as conventional as Chinese characters.

The introduction of M. Perrot* gives an account of the principal works on the history of art, especially with relation to the rise and development of art in Greece, but an introduction which would have pointed out the stages of development and transition from the arts of the Oriental nations to those of the West would, perhaps, have been more instructive and important. The history of Greek art has been so often written, and by the ablest of Classical scholars and art-critics, that there is hardly anything more to be said upon the subject. But there is a great deal to be said upon the transition of the arts from Egypt to Babylonia, Phœnicia, and Greece. There is a golden thread which binds together the arts of the Oriental nations, and its strands passed into the tangled skein of Western art. The monuments discovered in comparatively recent times in Assyria, Babylonia, Phœnicia, Syria, and Cyprus throw quite a new light on the development of art, especially the blending and fusion that took place between the arts of the Semitic people, the introduction of Egyptian types, modified in their character into Babylonian and Phœnician art; then their transmission into Cypriote and early Greek art, by which the most æsthetic forms were accepted, but the monstrous and disagreeable rejected. The reflex action of Babylonian and Phœnician art into Egypt is not less phenomenal, the earlier types assuming the winged development which glides into the later Egyptian art, and thence into the Greek and Etruscan, after becoming prominent in Phœnician and Persian types and Asiatic Greek currency.

The history of the development of Egyptian art is, of course, preceded by a glance at the physical nature of the country and the ethnographical peculiarities of the race, for the average type must have influenced the eye of the sculptor in his ideal of beauty. The type, indeed, is neither entirely Nigritic, Semitic, nor Caucasian, but a race formed by the blending of different nationalities; for, even at the remotest period of its history, Egypt was surrounded by populated countries on the south, east, and west, and the earliest sculpture shows in the limbs and features proper lines of form not observable in subsequent efforts of art,—massive limbs, broad chests, thick and large noses and lips, that are not entirely Nigritic, but yet show the influence of the blood of the black races, which even now abounds in the country. The intellectual development of the ancient Egyptian, however, as far surpassed that of the Negro as the Negro transcends the anthropoid ape, which exists on the same continent.

It has often been pointed out that the oldest monuments of Egypt lie to the north of Thebes or in the centre of the country, which would not have been the case had the arts started from an Ethiopian people stealthily advancing northwards in the valley of the Nile to the sea. When at a later period Egyptian civilisation advanced nearer to equatorial Africa, the monuments present a totally different type, and far inferior in all respects from the oldest Egyptian, presenting neither the same artistic bearing nor scientific knowledge, and nowhere in the same regions are found traces of a primæval civilisation, for the black races seem to have been incapable of high conceptions in art or that masterly treatment of hardest materials which pre-eminently distinguishes Egyptian art. The epochs of the history of Egypt are the supremacy of Memphis, the conquests of Western Arabia and Nubia, which declined till the rise of the Theban dynasties, when the eighteenth and nineteenth dynasties conquered Syria, Central Asia, Ethiopia, and penetrated to the eastern coast Africa, and enriched Egypt with its astounding architecture. The fall of these dynasties, decay of art, and continued struggle with Assyria and Babylonia, passing into the overthrow of the foreigner and restoration of a native line, with the restoration of the arts, with a more florid development and minuter detail,—the fall of Egypt into the hands of Persia, which had no influence on the art, about the sixth century B.C., the overthrow of the Persian Empire by Alexander the Great, and the influence of Greek art on the national monuments from the third century B.C. to the third century A.D., when the last traces of Egyptian art, as distinct from the contemporaneous arts of Greece and Rome, had disappeared.

The history of the nation has chiefly been preserved by the works of art; for the temples record by their bas-reliefs and official inscriptions the successful results of Egyptian polity while the tombs teach by their paintings and inscriptions the social conditions o the nation and the organisation of the country, all of which is reflected in the sculptures of the sepulchres, which nowhere else show so much of the contemporaneous condition of the people.

But religion exercised a still more decided influence on the arts, for at all periods the religion was idolatrous, figures of the gods appearing in different localities from the earliest period, more sparing at first, but completely developed from the eighteenth century B.C. to the extinction. The distinguishing type of Egypt was the admixture of human and animal forms, fatal, indeed, to the development of the perfect beauty of Greek sculpture. There can be no doubt that the purely human type was the oldest, like the fetichism of Africa, which regarded animals as deities or endowed with divine souls. At the very latest period the union of various animal types with the human form endeavoured to represent the pantheistic idea of divinity. The arts of painting, sculpture, and architecture varied at different periods, both in the conception of the type and the working of the details, and there is no greater mistake than to suppose that the art remained stationary; it changed with the corresponding physical, political, and religious developments of the nation, but was slow as these were tardy in making changes.

The first point of Egyptian architecture is its pyramidal type, all buildings partaking more or less of the section of a pyramid, as evinced by their sloping walls, giving, of course, great area for the base in proportion to the height, and the ground-plans are square or rectangular. The Egyptian ruling idea was the union of the triangle and the rectangle, and the curve only appeared at a later period in the column. The roofs were flat, as there was no necessity for providing against rain. Even the oldest was only a high pyramid, and although truncated after it had attained the height of ten times the broadest side, the top terminated in a pyramidion or small pyramid. The oldest was the next columnar development after the squared column and pilasters seen in the earliest tombs, or the so-called mastabas.

One of the chief causes of the changes which took place in the architecture was the intro-

* Perrot & Chipiez, History of Art in Ancient Egypt. 2 vols. 8vo. Chapman & Hall.

duction of different material, but at the oldest period the slab and the brick were rectangular; the brick being probably, especially the sun-dried, the first used material in Egpyt, for the baked rectangular brick was unknown till the Roman period. The oldest burned bricks in Egypt are the conical stamped ones found in the Western valley, and not earlier than the twelfth dynasty. Next to the brick came the use of the square blocks of limestone from the Mokattam range, of which the earliest pyramids were constructed, and then the blocks of red granite from Syene used as revetments to the Pyramids. Alabaster, the plain and not zoned, was employed for linings and facings at the time of the fourth dynasty.

The use of brick was as ancient as stone in Egypt, two kinds having been employed at the time of the Pyramids, and some of the Pyramids themselves being made of them. Bricks, however, were principally used for houses, walls, and fortresses, and not for temples. Owing to the pressure some of the brick construction became like adobe. The use of the vault was partly known at the earliest age, some of the mastabas, or oldest tombs, having indications of the knowledge of the arch in the ceilings, but the arch was often cut through horizontal layers and not the true arch, which did not come into use till a later period, and then chiefly in substructures. The arch did not enter into Egyptian architecture, but the dome, or egg-shaped roof, was much used for granaries, and made of clay or adobe. Without doubt many of the private houses were made of wood, especially the upper chambers. As regards constructions, there appears to have been an absolute want of sanitary arrangements; sewers were not used, and fœcal matters deposited in the soil, which added to the fecundity of the soil, but not to the health of the inhabitants.

The principal feature of the architecture was the use of polychrome decoration, according to M. Perrot, to make it visible against the too brilliant sky, and all materials were painted, none valued for their own colour. To the modern eye, so much colour does not produce so much impression, the difficulty of vanquishing such a hard and costly material inspiring more reverence than the whitewash and paint bestowed on granite shrines or diorite statues, and from the use of colouring wood an idea is conveyed to the modern mind that the paint disguised a comparatively worthless material; but bright colours were plastered not only on Egyptian but Greek architecture and sculpture, and so accustomed is the modern spectator to the washed-out appearance of works of ancient art that he can scarcely realise that they were formerly coloured, tinted, and gilded. Under the influence of colour they seem to collapse.

Owing to the belief of a future existence after death of the soul or shade, and the necessity of making proper provision for it, the sepulchres in Egypt were considered of primary importance to preserve the body intact, ready for the resurrection, and to be a suitable habitation for the *ka* or manes till that period. To provide against the destruction or loss of the body the statue was always placed in the oldest tombs in the neighbourhood of the pyramids, where the cities of the dead, consisting of subterraneous chambers surmounted by massive rectangular chapels, contain the images of the departed in secret niches behind their walls. These chapels or mastabas are arranged in rows or streets at right angles, and amidst each great necropolis tower the pyramids of the monarchs of the dynasty, of geometric triangular shape, reserved for kings and princes of the royal line. The private tombs are not so carefully constructed as the pyramids, some being constructed of mere rubble faced with regular masonry, which holds the material together. The mastabas exhibit only the rectangular forms, the stones which constructed its doors, columns, chamber, and ceiling all being rectangular, so also is the sarcophagus deposited in the corner of the rectangular chamber beneath the hall or chapel, access to which was originally obtained by a rectangular shaft or wall. The walls of the chamber of these mastabas were ornamented with sculpture, to which most of the knowledge of the condition of society is due. The sculptures of the best tombs are beautifully executed, generally in cavo-relievo, but occasionally in most delicate bas-reliefs, and often the colours retain their original brilliancy. Some of the very earliest tombs are inlaid with a thick red colour, in a kind of the so-called toreutic work of the Greeks, the tomb still retaining the square mortise or plug-holes by which the portions of red colour were attached to the surface.

The author discusses, at considerable length, the mode of constructions of the pyramids, and repudiates the idea that they were built round a pyramidal core, although admitting, at the same time, that the step-shaped pyramid at Sakkarah shows, by its chamber and passages cut in the rock beneath, and by its avoiding all the difficulties of cutting through the brick-work, that the principle of parallel layers had been adopted to enlarge the size of the pyramid. With regard to the Great Pyramid, the construction shows that the central chamber was made, and formed part of the original design, and that the sarcophagus was placed in the chamber and that roofed in, while the galleries and passages leading to it were in the course of construction, for the sarcophagus could not have been afterwards introduced. The author thinks that the size of each pyramid must have been planned before its construction, and that the original design was carried out, and that there are no internal signs of changes of structure from after-thoughts. It is, of course, not possible to do more than divine the original idea, for not a papyrus, plan, scrawl, or working drawing has survived the wreck of ages; and none of the tools, except, perhaps, an iron scraper and a copper nondescript object, found in the air-passages of the chamber of the Great Pyramid have remained out of the thousands which must have been constantly in the hands of the labourers and masons. Each pyramid was a separate work, and differs in size, external shape, and internal construction from its companions, each architect vying to excel his predecessors, or striving to produce a novel mode of construction. One of the most remarkable of the pyramid edifices is the Mastabat-el-Faraun, which resembles a truncated pyramid without an apex, and it has been conjectured that it may have been surmounted at the top by a single obelisk, to which it served as a large base. At all events, one pyramid of this design appears under the Old Empire. There is, however, no evidence from the monuments themselves that any of the pyramids were surmounted by statues. Not less wonderful than the external construction and the wonderful facing of the outside is the ingenious mode by which the entrance of the shaft or gallery which led to the sepulchral chamber was closed by a portcullis, and the pressure of the roof removed by the chambers of construction. But no serdab or niches for statues have as yet been discovered in any of the pyramids, although some *soupçons* of the secret recesses are conjectured to be present in the newly-discovered pyramids of Sakkarah; and the pyramids had either a chapel erected on their northern sides to answer to the mortuary chapel of the mastabas, or were else surmounted by a peribolus of unbaked brick. The bricks of the Old Empire are bonded with fragments of red pottery, while those of the period of Rameses II. are made with straw, in accordance with the Scriptural narrative. Under the Romans a reversion took place to the use of fractured vessels, and at the Christian period fragments of vases with Coptic hymns, letters, and prayers, aid to keep the sun-dried alluvial in the conventional form of a brick.

The tombs of the sixth dynasty at Abydos resemble those of the fourth and fifth dynasties, but under the eleventh, twelfth, and thirteenth dynasties these tombs, made of sun-dried clay, still retain the pyramidal form, being in shape of a pyramid placed on a square base. The pyramids are hollow, and formed inside into a clumsy cupola, with rudely-built offsets; the base has the chamber in its foundations, which shelters the masonry, and the tomb is vaulted, and the pyramid also has an arched door; and some of these tombs have a large portico or rectangular porch, also entered by an arched door; and the funeral masses and prayers were performed there. The other tombs of this period are those cut in the rocks at Beni-Hassan, with their rectangular chambers, cylindrical proto-Doric columns. The tombs of the monarchs of the eleventh dynasty, at the Drah-Aboul-Neggah are hemispherical, partly built, partly hollowed out of the rocks, with obelisks before the façade. The tablets or tomb-stones in all these sepulchres are placed inside. These tombs still remain, notwithstanding their exposure to depredation; but after the country had been overrun by foreign conquerors, a new system was introduced. The tombs are no longer above ground, but are hollowed entirely into the hills, with long rectangular passages, throwing out a series of rectangular rooms or halls, supported by pilasters or rectangular pillars rising to the roofs, with one great chamber for the sarcophagus, and others for the sepulchral jars, figures, furniture, and other objects. So far do these mining shafts or syringes, as the Greeks call them, pierce into the hill, that the tomb of Rameses III. is 416 ft. long, and that of Siptah, another monarch, 370 ft. long. The galleries incline from the rectangular entrance, and the doorway carefully concealed by heaps of rubbish, and are only accidentally discovered. The tombs of the kings of the eighteenth and nineteenth dynasty are of this nature; the walls and chambers are covered with elaborate sculpture, in relief or intaglio, coloured in the dark by masons and decorators, who worked by torch or lamp light. The mummies were there deposited, covered with sepulchral jewelry, which incited the cupidity of the resurrectionists to pierce the sepulchres and spoil them as early as the nineteenth dynasty. M. Perrot has stated that no figures of deceased monarchs have been found in the sepulchres; but he is in error. Three wooden figures of heroic and colossal size having been extracted by Belzomi from the tombs of the Bebar el Molonts, and more placed in the British Museum. Numerous sepulchral figures, jars, dummy vases, and other objects from these tombs exist in all European museums. The fact is that they have been so often stripped that nothing remains to remove worth having; the mouldering bones of the monarchs being too uninteresting to tempt the cupidity of the casual visitor. There is a plan on papyrus still remaining of the tomb of Rameses IV.; but it does not correspond accurately with it, and was, perhaps, drawn up before the tomb itself was hewn in the rock.

The private tombs at Thebes range over a long period, from the eleventh to the twenty-sixth dynasty, and even to the Roman empire, and exhibit great variety of structure, but the leading points were the wall or shaft leading to the sepulchral chamber excavated in the solid rock. The mortuary chapel, as in the mastaba, was erected above rectangular, with sloping walls, higher in proportion than at Abydos, but surmounted by a solid pyramid rising from the gorge or cornice. It was, in fact, like the Greek and Roman mausoleum, the Carian queen having only erected a tomb imitated from an Egyptian sepulchre. These tombs were richly adorned with painted sculptures, and contained statues and sepulchral figures, besides the furniture or models of that in daily use deposited in the tombs. The subjects of the Theban tombs were not less interesting than those of Memphis, but the royal tombs exhibit a new phase of the Egyptian religious hell with its terrors and its demons, the passage of the sun through the hours of the day and night, the march of troops, the spoils of war, the prisoners of Asia and Nubia, figure in the tombs of the eighteenth and nineteenth dynasties. At Sais, in the Delta, owing to the alluvial soil, the tombs could not be carved in the living rocks, and were edifices reared above the ground, and they and their tenants have disappeared, a few sepulchral objects connected with them only remaining in the museums of Europe to attest their former existence. The Serapeium or necropolis of the bull Apis at Sakkarah consists of immense galleries with sepulchral chambers containing the sarcophagus and mummied portion of the bull walled in the outer wall covered with votive tablets. The sepulchral chambers of a few of the bulls of the eighteenth and nineteenth dynasties only are surmounted with mortuary chapels like those at Thebes.

The Egyptian temple dates from the fourth dynasty, up to which period there were no temples but only pyramids, which were tombs. The temples near the pyramids resemble in a great degree the mastabas, and are constructed of huge blocks of stone with square columns all unadorned with paintings or figures, and no statue of any god exists of the period. Mention of foundations of temples made in the time of the fourth and sixth dynasties is, however, found on edifices much more recent. Under the eleventh and twelfth dynasties vestiges of shrines from which the later temples took their development are discovered at Thebes and elsewhere. These gigantic edifices were all surrounded by periboloi or walls of sun-dried bricks, 30 ft. high, and 40 ft. thick, but the walls of the periboloi of the earlier temples have crushed or collapsed by time. Besides the periboloi, a

long avenue of sphinxes or lions led up to the door or gate in which were erected poles with streams, and at each side of the entrance were colossal statues and obelisks, one before each jamb. These last were supposed to avert the effects of storms, the Egyptians having probably discovered that tall pointed columns like the obelisks attracted or diverted the electric fluid. After the propylon came the peristyle hall, then the halls of columns, followed by different chambers, and finally the shrine. The temples, however, differed in their ground-plans; in some, the subsequent additions being made on the long axis from the shrine; in others at oblique angles, and at Abydos on a line *en potence*. The speoi or rock temples are more common in Nubia at the time of the nineteenth dynasty, but after cutting down the rock, the excavation consists of chambers with colossal caryatid figures. It is only at the Deir-el-Bahari that a large courtyard with terraced courts lead up to the speos. Nor less remarkable are the temples constructed under the Ptolemies and Romans, some of which have crypts for holding the apparatus and treasures of the temples. Inside and outside were decorated with coloured sculptures in intaglio or relief, and the work on the column no doubt suggested to the Greeks the sculptured columns of Ephesus and the triumphal columns of the Roman Empire, as the propylons, themselves triumphal gateways, had preceded by centuries the triumphal arches of Rome.

We will find another opportunity for the remainder of our observations.

ISLINGTON AND THE METROPOLITAN BOARD OF WORKS.

"Old Iseldon, though scarce in modern song
Named but in scorn, may boast of honour'd days;
For many a darling child of Science there
Hath trimm'd his lamp and won his laurel crown."

AT their meeting on the 21st March last, the Metropolitan Board of Works resolved, in view of the excessive cost and other difficulties involved, to relinquish at present so much of their scheme as relates to the new street through St. James's, Clerkenwell, from Holborn Town-hall to St. John-street-road.* But, besides providing for certain structural improvements in many other parts of London, the Board's Bill comprises a project to widen Upper-street, Islington, in which quarter they are already employed in establishing some blocks of industrial dwellings on the cleared sites of Elder-walk, Paradise-row, and Angler's-gardens, so long the habitat of the working watchmakers of Clerkenwell. The widening of Upper-street, partly on one side and partly on the other, will extend for nearly half a mile from the Green to Barnsbury-street; the clearance at Angler's-gardens covers more than ten acres of ground.

The word Islington affords a puzzle in onomatology. Skinner derives it from *gisel* (a hostage) and *tun* (town), but the parish has never been called either Giselton or Gisleton, and his theory is otherwise untenable. Some recognise in Islington the patronymic *ing* of its namesakes in the neighbourhood of Birmingham and Lynn, in the Islinghem of Artois, in the many villages of cognate style in Wurtemburg. Others, and they, we think, with the better reason, identify in the Isendone of Domesday Book the hill of iron springs.† Variously written as Isendon, Iseldon, Yseldon, and Eyseldon, the name assumed its now shape towards the end of the sixteenth century. It may be convenient to preface our necessarily brief notice of its historical and personal associations with one or two particulars concerning the parish topography, premising that the existing names of sites and places are indicated within brackets.

Traversed along its centre by the *via militaris* or Ermin-street (Upper-street and Holloway-road) from Cripplegate to Lincoln, by the New River in the east and the river of Wells (of Fleet) in the west, Islington is situated in Ossulstone Hundred, and surrounded by the parishes of St. James's Clerkenwell, St. Pancras, Hornsey, Stoke Newington, Hackney, St. Leonard's Shoreditch, and St. Luke's Old-street. It can boast of more than one Roman camp: the summer camp at Highbury, and that of Suetonius Paulinus at Pentonville (Penton-street), whence he encountered with terrific slaughter the "British warrior-queen" of the Iceni in the valley below (Battle Bridge, King's-cross).* The ancient remains which yet stood less than sixty years ago in Somers-town,—a part of whose site has recently been laid bare, and the rest is covered by the Midland Railway Station and approaches,—were confidently considered by Dr. Stukeley to be a camp of Julius Cæsar. In his "Itinerary," vol. ii., of 1758, he gives a circumstantial account of the spot, and, with more of conjecture than good warrant, fixes the prætorium upon the left bank of the Fleet (between Goldington and Charrington streets by Pancras-road) over against the old church of St. Pancras-in-the-Fields. His enthusiasm outruns his judgment; and, though willing to believe in his assignment of precise positions to the prætorium of Mandubrace, King of London, to the Quæstor Antony, the Gaulish princes, the different *portæ castrorum* and the like, we call to mind Edil Ochiltree's ruthless ejaculation to Monkbarns in "The Antiquary." For, whilst not going so far as those who would see in the vallum and ditch standing in Stukeley's time nothing more than the survivals of the earth-works which the citizens threw up in the period 1642-3 for the City Militia Committee,† we incline to Lysons's view. He regarded them as the site of the old rectory house and messuage adjoining, which, in a survey of date 1251 preserved at St. Paul's, is described as consisting of two *areæ*, one *prope ecclesiam*, the other *ad aquilonem ecclesiæ*, in this respect suggesting a comparison with the former moated rectory at Newington Butts. It is difficult to credit Cæsar with choosing for his camp low marshy ground at the foot of a hill, and exposed to inundation by the Fleet and its affluent here, the Brill. The latter stream, whose name points to an ancient derivation, is marked in Dr. Stukeley's plan (which, it is only fair to say, was posthumously published) along the south of the camp, a few yards northwards of the then just completed New- (Euston) road. In the Reed-Moat-field, near the workhouse (western end of Barnsbury-street), there existed at the beginning of this century a trench about a mound said to be of Roman origin, and certainly corresponding with the account of Polybius. Passing, however, to a later and more assured period, a very valuable plan preserved by the vestry shows the parish in the year 1735. In this,—a detailed description exceeds our limits,—the New (Pentonville) and City roads are not defined. The latter, indeed, was not made until 1761 by Dingley, in continuation eastwards of the road from Paddington to Islington which had been opened five years before under an Act of the 29th George II. Dingley's road was cut through the fields to Peerless Pool (north of St. Luke's Hospital), and thence, bending southwards to Dog House Bar (corner of Old-street), where the Corporation kept their packs of foxhounds and harriers,‡ to the Artillery Ground; whence it was extended into Moorgate-street. But the map shows Madan or Maiden-lane, called by Norden Longwich-lane (York-road running northwards from King's-cross); Hagbush-lane, the course of which ancient tortuous bridle-path cannot be accurately laid down, but may be taken as mainly identical with the present Hornsey-road and in part Caledonian-road; Hopping-lane (St. Paul's-road, Highbury); Copenhagen (New Cattle Market); White Conduit (at the corner of Denmark-street and Barnsbury-road, Pentonville), Back-road (Liverpool-road), Hedge-row (High-street), Lower-street (Essex-road); with the Rosemary Branch, Pied Bull, Ring Cross, Jack Straw's Castle (Highbury Barn), and the like. The approaches northwards to the Angel are barely denoted, and were long notorious for their badness and danger. Angler's-gardens and Elder-walk, by the New River, lie between Lower-street and Frog-lane (Popham-terrace), having Provence Field to the south. The road from Lower-street to Ball's Pond was opened in the year 1800. The parish bounds are ten miles and a half in circuit, and inclose upwards of 3,032 acres.

From a remote period Islington was a highly popular resort of the citizens in their leisure. Fitzstephen, writing in King Henry II.'s reign, chronicles how the city youth would sally forth with their teachers into its fields to play at ball, the elder and more worthy citizens accompanying them on horseback to see the sport, and themselves to contend in military exercises. Stow speaks of the challenges the citizens would send to all in the suburbs "to wrestle, shoot the standard, broad arrow, and flight for games at Clerkenwell and Finsbury Fields." The gardens and retreats without Moorgate had been cleared away in 1498 for a shooting field. Numerous statutes and ordinances from Edward III. downwards provide for compulsory practice with the short and long bows in the open spaces stretching beyond the walls, now covered by Islington, Finsbury, Hoxton, and Shoreditch.* In gratitude for her escape from a random bolt which pierced the crown of her hat (*temp.* Queen Mary), Dame Alice Owen founded her charity in Clerkenwell. Meanwhile the Duke of Shoreditch, the Marquess of Islington, the Earl of Pancridge, and others, archers of renown, had witnessed the triumph of one sovereign and the degradation of another. A fugitive from Hexham, but captured at Cletherwood, King Henry VI. was brought to the capital tied to his stirrup-leathers, and, met here by the Earl of Warwick, was deprived of his gilded spurs.† In Stow's "Annals" we read that King Henry VII., fresh from his defeat of Lambert Simnel and his adherents, was welcomed at Islington by the Lord Mayor and Aldermen. Nor does it lack more painful memories. We need but turn, for instance, to Fox's "Martyrs" to find how John Rough,—the Blackfriars preacher at Stirling who persuaded Knox to enter the ministry,—was apprehended with Simpson at the Saracen's Head by Bonner (third Sunday in Advent, 1557), whence they were carried to West Smithfield to burn for heresy. Powell, a schoolmaster here, suffered for complicity in a plot to assassinate Oliver Cromwell (Heath's "Chronicle," 1676); Colonel Okey, taken in his hiding-place at Barber's Barn, Hackney, to die a regicide's death, began life as a labourer in a brew-house on Islington-green.

Though archery as a diversion continued in esteem until the days of King James I., with the introduction of firearms began the levelling of the butts and boundaries, the hedges and ditches, about Islington. King Henry VIII. had not long ascended the throne when fair summer-houses, with gardens, sprang up around, and here and there the houses of entertainment which earned for it henceforward the cognomen "Merry Islington." In his daughter's reign its farms and dairies had become famous for their produce,—the *lac caseus infans* of the Squier Minstrel of Middlesex's address before Elizabeth at Kenilworth.‡ Of the favourite resorts during the earlier half of the seventeenth century we may instance the Rose and Crown, Saracen's Head, George, Red Bull, and Blue Boar; these being succeeded in popularity by the Angler, in Anglers'-gardens, house of call for those who fished in the New River; the Crown, and the Queen's Head,§ in Lower-street; Frog Hall, in Frog-lane; Colebrooke House; Spotted Dog, near the turnpike; Copenhagen House; and the White Conduit. At the Saracen's Head, Jordan places his comedy (1641), "The Walks of Islington and Hogsdon, with the Humours of the Wood-street Compter," treating of the usual adventures between wild gallants and citizens' wives. This tavern plays a conspicuous part in the episodes Drunken Barnaby introduces into his "Four Journeys to the North of England," and in Davenant's "Long Vacation in London." The "Merry Milkmaid of Islington" is the title of a rollicking farce first acted at Newmarket‖. The less harmless pastimes of bull-baiting and duck-hunting had their followers here. At the Restoration one John Ball, dating his tokens from "The Boarded House, neere Newington Green," kept the Salutation,¶

* See *Builder*, vol. xliii. p. 792, December 16th, 1882, and the previous number thereto. The houses facing the Inn, in Gray's Inn-road, are now being demolished.

† The springs being mostly chalybeate. Masses of iron sulphuret were found some years since when well-sinking in Back-road and Park-street.

* Sketches of the Prætorium and old well in the fosse, as they then appeared, are in Hone's "Every Day Book," vol. ii., of 1827.

† "Memorable Occurrences," 24—31 October, 1642; and "Perfect Diurnal," *passim*.

‡ The huntsman had a house where the Angel now stands, in St. James's (Clerkenwell) Parish.

* The "distances" ranged from 9 to 19 score, 180 to 380 yards.—Statute 23 Henry VIII. See amongst other curious books on archery, the "Ayme for Finsburie Archers," 1628, and the "Ayme for the Archers of St. George's Fields," 1664. Two butts remained until the end of last century by the Rosemary Branch Tavern.

† Holinshed's "Chronicles," vol. iii.

‡ Nichols's "Queen Elizabeth's Progresses," vol. i. fols. 31-33.

§ The Queen's Head, pulled down in 1820, was a perfect specimen of Elizabethan domestic architecture, and is believed to have been occupied by Burleigh.

‖ See also a tribute to "audacious and unconscionable Islington! . . . . Metropolitan mart of cakes, custards, and stewed pruans," in "A Morning Ramble; or Islington Wells Burlesqt" (1684).

¶ The New River, on entering Islington from Hornsey Sluice House, was called the Boarded River, from the

where his duck-pond gave its name to the spot. Pepys writes of the Ducking-pond Fields, which he found much "altered since my father used to carry us to Islington to the old man's at the King's Head to eat cakes and ale" (March 27, 1664). So again in the opening scene of "Every Man in his Humour," Ben Jonson makes Master Stephen, the country gull, repudiate the imputation that, though dwelling at Hogsdon, he keeps company with none but the Cockney "archers of Finsbury, or the citizens that come a-ducking to Islington ponds!" The White Conduit had its Wheel Pond, the Back-road its Ducking-pond Field. Howes says the reservoir at New River Head was "in former times an open idell pool, commonly called the ducking-pond." Goldsmith, in his "Citizen of the World," mentions a pond, that on the Green, in the middle of the town.

At the mere mention of Islington our recollection recurs at once to Goldsmith. Who would willingly forget the characteristic story of his treating some ladies at the White Conduit, and then finding he had not the wherewithal to pay the reckoning? And then his shoemaker's holidays,—a cheap and innocent day's pleasure, consisting of breakfast in his chambers, dinner at Highbury Barn, tea at the White Conduit, followed by a supper at the Grecian, the Temple Exchange, or the Globe in Fleet-street, the whole cost being less than 5s. for each of the party? When at Canonbury Tower he would spend the evenings with his fellow-lodgers in the Crown, or enjoy the more elevating company of the Literary Club, turning over the while the stanzas of one of the most perfect poems in our language. Neither Johnson nor Burke nor Reynolds, who all felt his loss so deeply, was with him at the last; but Dr. Hawes, who lies in the parish church, and who, with Cogan, established the Royal Humane Society, wrote the story of his last illness and death. To the home of the reverend Dr. Strahan, vicar, son of his old friend the king's printer, and who published his "Prayers and Meditations," Dr. Johnson would occasionally retire for change of place and air. He there drew up the plan of his will shortly before his decease. The then vicarage stood over the yard and skittle-ground of the Old Parr's Head, Cross-street. Johnson, who always spoke or wrote of Collins with tenderness ("Poor Collins! I have often been near his state"), called on him one day at Islington, and found him with no other book than a Testament such as children carry to school. Curious to see what companion a man of letters had chosen, he took it in his hand. "I have but one book," said Collins, "but that is the best." Addison frequently stayed here. The four initial letters, with either one of which he signs his papers in the "Spectator," are believed to stand for Chelsea, London, Islington, Office. He opens No. 393 of the "Spectator" with a fictitious note dated from Copenhagen. Traditions runs that Sir Walter Raleigh lived at the Pied Bull by the north-western corner of the Green, but his sojourn here is not referred to by either Oldys or Shirley, his biographer. Mrs. Foster, a granddaughter and last descendant of Milton, kept a chandler's shop in Lower Holloway, and died (May 9, 1754) at Islington. Whilst she lived here, "Comus" was performed at Drury Lane (April 5, 1750) for her benefit, at the instigation of Dr. Johnson, who composed the prologue delivered by Garrick. John Bagford, antiquarian and print collector, whose topographical collection is at the British Museum; Joseph White, numismatist and naturalist, who lived next door to the Queen's Head; and Isaac Ritson, contribute their names to the list of Islington worthies. Leaving Charles Lamb's cottage in Colebrooke-row one night, Dyer walked into the New River, which, "rather elderly by this time, runs, if a moderate walking-pace can be so termed, close to the foot of the house" (Charles Lamb to B. Barton). In Camden-place Cruden, author of the Concordance, was found dead upon his knees in the attitude of prayer. John Nichols, the celebrated antiquary and compiler of the "Anecdotes" lived in Highbury-place.

There are some good houses in Cross-street,—notably that of Sir Thomas Fowler, bearing several initials and emblems of Queen Elizabeth's time,—in Upper-street, and in the courts behind; though none out-rival in antiquity or interest Canonbury Tower. Ralph de Berners, from whom Barnsbury takes its name, gave his manor to the prior and convent of St. Bartholomew's the Great. It is enumerated among their possessions in a confirmation grant of King Henry III., dated 1253. The manor took its style from the canons, as did the seat of the Duke of Chandos at Little Stanmore from the same order. Prior Bolton rebuilt the manor-house, in the remains of which, Nos. 5–7, Canonbury-place, may yet be found his well-known rebus and some valuable "bits" of sixteenth-century work. Bolton is commonly described as the last prior of St. Bartholomew's, but he had for successor, Robert Fuller, abbot of Waltham Holy Cross, who was elected in 1532, the year of Bolton's death. Granted at the Dissolution to Thomas, Lord Cromwell, the manor reverted to the Crown upon his attainder and execution, and was charged with an annuity of 20*l.* to Anne of Cleves, whose union with the king Cromwell had promoted.* Assigned by King Edward to John Dudley, Duke of Northumberland, it again returned to the Crown, and was then given by Queen Mary to Thomas, Lord Wentworth. He sold it in 1570 to Sir John Spencer,—"Rich Spencer," the wealthy citizen and clothworker, who kept his mayoralty at Crosby-place, and lies beneath the monument in St. Helen's, Bishopsgate. Spencer rebuilt the tower from which his only child, Elizabeth (her figure appears on the monument), eloped, effecting her escape, as the story runs, in a baker's panyer, with William, second Lord Compton, ancestor of the present Marquis of Northampton, lord of the manor. The incensed father at first disinherited his daughter, but, by a stratagem of Queen Elizabeth, who asked him to adopt the child of one she knew who had run away to be married, became reconciled to the union, and the child eventually succeeded to his mother's property.† Newbery, the bookseller, held the lease for a while. Here he lodged his luckless son-in-law, Kit Smart, and, during the whole of 1763 and part of 1764, Goldsmith, a Mrs. Fleming being their landlady. During this interval the Literary Club was founded, Boswell made the acquaintance of Dr. Johnson, and Goldsmith produced his "History of England," composed "The Traveller," and worked for Newbery's Liliputian Library,—the dear little delectable histories of "Goody Two Shoes," "Giles Gingerbread," "Be Merry and Wise," "Tom Thumb's Folio," and many more, resplendently bound in the flowered and gilt Dutch paper of former days, and inscribed to all young gentlemen and ladies who are good, or intend to be good, by their old friend in St. Paul's-churchyard. Goldsmith occupied the oak-panelled room in the first floor of the tower, and was staying here when Dr. Johnson on one memorable occasion hurried from Streatham and freed him from arrest by selling a tale its author had laid aside, but to which we all turn again and again, and in which, in the words of Sir Walter Scott, he reconciles us with human nature. Much of the site of Canonbury was built over at the end of last century by John Dawes, stockbroker, whose house at Highbury was afterwards occupied by Alexander Aubert, F.R.S., who built and fitted an observatory there with the help of John Smeaton. The old parish church of date 1483 gave way to the present building, designed by Lancelot Dowbiggin, in 1751. The brick tower and stone steeple have a *faux air* of St. Mary-le-Bow in Cheapside. The living was originally appropriated to the nuns of St. Leonard, Bromley-by-Bow, by William, bishop of London, *temp.* the Conqueror. They continued its patrons until the Dissolution, when four-fifths of the parish was in the hands of the clergy. Sadler's Wells, being in the parish of St. James, Clerkenwell, does not properly come within the purview of this article: still, as an example of the manners of the time under review, we may state that, by frequently coming here to take the waters, the Princesses Amelia and her sisters, daughters of King George II., brought the New Tunbridge Wells into fashion.

Buildings at St. Dionis Backchurch.—The name of the clerk of works is Mr. J. Roberts, instead of Robinson, as stated.

PRIMÆVAL BRITISH ARCHITECTURE.

THE recently-published work by the late Dr. Edwin Guest, Master of Gonville and Caius College, Cambridge,* contains,—although modestly professing to be only of a fragmentary nature,—in reality a considerable number of carefully-written essays upon a large number of subjects both scientific and historical, connected with the multiplicity of questions which arise in reference to the origin of the primæval inhabitants of the British islands. But in drawing the attention of the readers of the *Builder* to a critical work which will richly repay close perusal,—being, as it really is, well worth, not only reading, but digesting and studying,—we do not propose to review, nor even to enunciate, the theories advanced by the learned author with whom probably the majority of his fellow-workers will, in the main, agree, although, no doubt, there are those who are unwilling to accept some of his deductions. Still, every one will admit that for breadth of information, extensive reading, and fairness of argument, no fault is to be found with these remarkable essays. But in one part of the work an important chapter is devoted to an examination of British buildings, and it will be advantageous to archæologists if a summary of Dr. Guest's researches can be laid before them. The Italian Gauls appear to have lived in the time of Polybius in unwalled villages; but a century later Cæsar found the Transalpine Gauls already making progress in mural architecture, their towns being walled, and even furnished with market-places. Some of these towns, extremely rare, the author thinks, prior to the first century before the Christian era, were strongly fortified, and regarded with much pride and affection by their inhabitants. The walls were of amazing thickness, and their construction was simple, ingenious, and in the highest degree protective and substantial. In fact, they appear to have resembled, in some degree, the groins and sea-walls which we so frequently see constructed in the present day. Trunks of trees, reaching to the great length of 40 ft., were laid on the ground side by side, at regular distances of 2 ft. apart. The ends pointing inwards towards the town were connected together, and the spaces between the timbers filled in with earth and faced with stone. Another tier of timber succeeded the first, arranged in such a way that the timber and stone sections alternated with the stone and timber sections of the lower row, and thus, when the wall had risen to the intended elevation, the outer ends of the trunks were shown on the external facing in a chequered or quincunx pattern. The requisite materials for this remarkably powerful kind of defence would not be difficult to procure in a country so richly wooded as Britain is known to have been in the time of Cæsar, and, for power of resisting fire and the battering-ram, it would be impossible, even in these days of scientific defences, to devise a more serviceable wall. Still, as Dr. Guest admits, we have no authority for asserting that the Britons constructed their walls on this plan, as used by the Transalpine Gauls, and any remains of walls half constructed of timber have probably long since perished. Into the vexed question of vitrified sites the author enters largely, and adduces the old Shropshire building, called Gatacre Hall, as causing him to hesitate in adopting the conclusion of some antiquaries that vitrified walls were the result of accident. In this Hall the remarkable walls are recorded to have been built of a dark-grey freestone, coated with a green vitrified substance "about the thickness of a crown-piece, a most effectual preservative against all bad weather." It is strange that the peculiarities of this building, which has been pulled down within the last ninety years, have excited so little interest, and, although Dr. Guest does not endeavour in the least to assign a date to so peculiar a building as this must have been, with its nine immense oak trees inverted so that the roots formed a complete arched roof, its floor of 3-in. oaken boards, hewn with the axe, and its vitrified walls, it is evident that a very hoary antiquity belongs to it. It may be compared with the Berkshire hut mentioned by the author, and the curious timber structures described in detail in the work before us, and discovered by Captain W. Mudge in Drumkelin Bog, county Donegal, in 1833,

peculiarity of its construction. It was carried across a branch of the river Lea in a long wooden trough, lined with lead, in which it flowed for some distance. The trough, giving its name to a way (Green Lanes) from Newington to Stroud Green, was removed in 1760.

* The grant of date, January 20, 1540-1, is printed in Rymer's "Fœdera," xiv. 713.

† This was enormous for those days, if we can judge from a letter of Lady Compton to her husband, arranging for her retinue and household. The letter was first printed in the *European Magazine* for June, 1782.

* "Origines Celticæ (a fragment), and other Contributions to the History of Britain." By Edwin Guest, LL.D., D.C.L., F.R.S. In two volumes. London: Macmillan & Co., 1883.

which had been preserved from decay by the growth of the bog-weed into every crevice of the work. It is difficult, however, to follow Dr. Guest when he adduces a now-exploded derivation of the ancient name of Glastonbury, or "Glestingabyrig," as tending to strengthen the conclusion that the inhabitants of this island really had at one time some means of vitrifying the surface of their walls, but we agree with him when he says that, though he knows of no well-authenticated instance, it is certainly possible that remains of such vitrified walls may still be extant. But there are still existing buildings which indicate the methods employed among the Britons for remedying the want of bond which is the inherent defect of walls constructed without mortar. One important feature of the system was to build the wall very carefully in the faces, filling the spaces between them so as to form one solid mass, the stones having a sufficient incline in order to just shed the rain-water, and a wall, say apparently 15 ft. in thickness, would not unfrequently be constructed of three parallel walls, closely contiguous to each other, each 5 ft. thick. By these means a breach in the outer section would not extend beyond one-third of the whole thickness of the compound wall, and the besieger would still find a perpendicular surface, sometimes 10 ft. or 15 ft. high, opposed to his advance, and behind this another wall. Curious specimens of this Celtic style of masonry are found in the Isle of Arran, and others have been found both in Ireland and Great Britain. With these may be compared the Hiberno-Celtic *cashel*, or unmortared walls, on Oilen-Tsenach, or St. Senach's Island, which lies off the Coast of Kerry, where an ancient settlement of monastic character is enclosed by a wall, oval-shaped in plan, 60 ft. by 40 ft., rudely built of great blocks of limestone, and measuring 18 ft. in thickness at the base, while the original height is undetermined. The plan is figured from Lord Dunraven's "Notes on Irish Architecture," in Mr. J. Anderson's "Scotland in Early Christian Times." Just such another wall is described by Mr. Geo. Tate in his "Account of the old Celtic Town of Greaves Ash, near Linhope, Northumberland, 1861," as built of the local porphyry rock, without lime, or even clay, to cement the stones. Here the facing-stones are carefully fitted to each other, and the width of the wall varies from 10 ft. to 12 ft. Mr. Tate notices some designed peculiarities of structure, such as long and large blocks set up at intervals, with irregular courses of flat stones at their sides, and, in some parts, courses of stone very carefully built across the breadth of the wall at right angles to its face, evidently to give additional stability and minimise the breaching-power of the battering-rams. For other equally interesting peculiarities of Celtic walling, the reader may consult with advantage Mr. Tate's carefully-written account. The employment of huge slabs of unwrought stone forms another distinctive feature of Celtic masonry, where they occur lengthways and standing up throughout the thickness of the wall, or resting on upright props, serve as a shelter, refuge, storehouse, or cenotaph. The style of building known as horizontal vaulting, where layer upon layer of stone laps over each course successively, the enclosed area gradually converging to a point over the centre of the edifice which was finally capped by a covering-stone, was also in use among the earliest inhabitants of this island, and is not without illustration by similar ancient erections in Egypt, Asia, Greece, Sardinia, and elsewhere. In Britain this appears to have been a favourite mode of vaulting, even after the Romans had introduced their own peculiar methods of vaulting. The beehive huts, many of which are still extant in a more or less dilapidated condition, are carefully examined in detail by Dr. Guest, who compares their individual peculiarities and varying features in an extremely interesting manner. In the same manner he describes the hut-circles, the arched passages found connecting two or more of these beehive houses and the recesses in the surrounding walls of cahers, or hut groups, which, he suggests, formed a ready means of shelter to a belated inhabitant, rather than a kennel for a watch-dog which one writer has supposed. Of the dimensions of hut-circles much is recorded, and, while generally varying from 10 ft. to 15 ft. in diameter, the beehive huts, when made of timber, occasionally possessed very large measurements, such as 30 ft. or more in diameter, Nor does it appear to have been absolutely necessary that the edifice should be circular in plan, or, at least, the system was not long in being modified so as to include structures with rectangular or parallelogram plans; for Mr. Anderson, in the work already quoted, points out how closely this latter form belongs to the earlier or circular house. Many of the illustrations with which that interesting book is adorned claim the most careful examination. The construction of houses such as these must have been laborious and expensive; ribs or props of timber, more or less symmetrically disposed, held up wickerwork interior walls, and helped to support the roof, which, from the peculiarity of its construction, must have been very ponderous. A remarkable building, not very dissimilar to the foregoing, was visited by Dr. Guest in Berkshire, and he describes it very technically and with great minuteness, contrasting it with those pointed out in the "History of Newbury," the cottage buildings of the north and the bothies of the Scotch Highlands. Houses of oaken planks, covered from top to bottom with sheets of lead, and supported by props resting on the ground, seem to be the advanced form of those earliest habitations. St. Finan's church at Lindisfarne appears to have had planking resting on the props, parallel to the ridge; but the earlier British church at Glastonbury had the spaces between the props filled in with wattlework, for which Paulinus substituted planks. The house found at Aughamore, near Granard, in 1867, under water in a bay, was constructed of eight very strong beams, measuring between 10 ft. and 13 ft. in length, supported by cross-beams of great length, and firmly jointed, the side beams being mortised securely as if they were intended for uprights. The Drumkelin house, already mentioned, gives proof of the use of the tenon and mortise and rudimentary framing. This building, which consisted of two stories or compartments, each about 4 ft. high, may have been constructed some centuries before the commencement of our era. Of the origin and gradual elaboration of timber-roofs the author has put much that is original and conclusive on record in his work; but we must refer the reader to the work itself for information on this interesting subject, as well as for notices of brushwood roofing, wickerwork, and doorways; while the subsequent essays upon the ancient topography and settlements of Britain will be found quite as attractive in another way to those whose researches lead them to study the remarkable and astonishing results which Dr. Guest's laborious researches have now, for the first time, achieved. It is, after all, only from the records of isolated instances, such as the proceedings of archæological societies teem with, that the master antiquary can construct the sound theories and deduce the tenable assertions with which the present work abounds in a notable degree exceeding all expectation.

USE AND ABUSE OF OUR HIGHWAYS.

It is hardly creditable, either to our administrative skill or to our public intelligence, that the Brentwood Bench of Magistrates should have been occupied for four days in hearing and deciding on a case of damage inflicted on certain parish roads by a traction-engine. That in any such case matters of fact have to be clearly stated in evidence, we fully admit. How long a time could thus be usefully consumed we do not pretend to say. The point to which we refer is the absence, either as matter of primary legislation or as measures of the education of the administrators of the law, of any distinct rules or principles determining the proper relations that should exist between the two corresponding parts of the machinery of locomotion, viz., the fixed and the movable. In a word, what is the weight which may be fairly brought on any kind of road,—including railways and tramways?

The value of establishing some general normal relations of this kind is illustrated, not only by such a case as that recently brought forward by the Billericay Highway Board, but further by the wild projects which are advocated by speculators for such schemes as what are called "Ship Railways." It has been gravely proposed to construct a railway over which a ship weighing 4,000 tons and upwards may be conveyed over land, from one port to another. A 4,000-ton vessel, 415 ft. in length, has a beam of 44 ft., and will thus cover (making no allowance for the taper at stem and stem) 18,260 square feet, or say 2,000 square yards. This would give an equal pressure, if distributed over the whole area, of four-ninths of a ton per square yard, or 497 lb. per square foot. This might well be supported by the ground where it is solid, although the behaviour of an embankment under such a weight is more uncertain. But it is not only by the ground, but by wheels, that such a weight would have to be upborne. And if we limit the insistent weight to five tons per wheel we should require a rigid carriage supported by 800 wheels, and a rigid road that would support, without deflection, all these 800 wheels at once, to say nothing of what would be required extra for the weight of the cradle or truck. We thus at once see that the idea is wholly chimerical. But that there are a great many persons who are destitute of the simple mechanical knowledge necessary for looking at such a plain case as this is evident from the very fact that the scheme has been thought worthy of discussion.

In the powerful engines which are constructed by John Forster & Co., of Leeds, and which, after travelling under steam along the roads, are employed to drive the plough in the fields, a pair of driving-wheels, of 5 or 6 ft. in diameter, have tyres 20 in. wide. But the oblique projections on these tyres are only 14 in. in width, and at least one-third of the bearing surface must be subtracted for the spaces between the projecting ribs, which are intended to take a firm hold of the ground. The very idea of so holding the ground is one that involves destruction to road surface. If we suppose that a length of 6 in. of roadway is pressed upon by the wheels at each moment, we find that almost exactly 112 square inches will be supporting the pair of driving-wheels at any given time. The weight of one of these engines in working order is 17 tons, of which 12 tons is the weight on the driving-wheels. What the effect of this crushing weight of 340 lb. per square inch on any road must be may, to some extent, be realised by considering that, in the case of the steam-roller, contrived for rolling and consolidating the roads alone, the whole weight of 15 tons is thrown upon two smooth wheels of 47 in. diameter and 55 in. width. The bearing area of these wheels, calculated on the same principle as before, is 473 square inches, giving rather less than 70 lb. per square inch for consolidating, against 340 lb. per square inch for "prising" the heavier machine along the road. To this also must be added a further allowance corresponding to the amount of tractive power exerted by the engine.

Gurney's steam-coach, patented in 1831, had a weight of 2 tons 10 cwt. on its 3½ in., and driving-wheels of 60 in. diameter. Hancock's had a weight of 2 tons 12 cwt.; Boydell's road engine, intended for heavy traffic, had 8 tons; Fowler's engine for goods traffic and agricultural purposes, 7 tons. For this engine the driving-wheels are 16 in. in width and 66 in. in diameter. This gives a pressure of 140 lb. per square inch, irrespective, as before, of the pressure due to pull of loads behind the engine.

We think it very important for the maintenance in viable order of the highways of the country that primary facts of this kind should be understood. As to the right of a Highway Board, in the present state of the law, to make any extra charge on any persons using a highway on the score of their disproportionate amount of use, as in the case of a constant traffic, we offer no opinion. But as soon as the question of steam power comes in, the case is altered. The engine used by the Short-horn Dairy Company is called a 9-ton engine. This is an engine made by Charles Barrett, that weighs 9 tons in working order, of which 6 tons 10 cwt. are on the driving-wheels, which are 14-in. in width and 66-in. in diameter. If these wheels are plain, the direct pressure on the road will be only about 86 lb. per inch. But in these cases the longitudinal measure of 6-in. (or less in proportion to diameter of wheel) which we have allowed, presupposes a certain amount of subsidence or sinking of the wheel into the road. In the experiments by Sir John Macneil, which still form the data for our practice as to road construction and maintenance, the weights are reduced and given per inch of width of tyre. By this mode of measurement we have the following results. We take the figures as to ordinary vehicles from Mr. D. R. Clark's little book on "Roads and Streets," p. 144, and take the corresponding facts as to traction engines

from volume 369 of the Minutes of Proceedings of the Institution of Civil Engineers.

Vehicle.	Weight.	Width of tyre.	Pressure per inch.
	Tons.	Inches.	Cwt. of width.
Mail-coach	2	2¼	4·40
Stop-coach	2½	2	6·25
Van	4¼	2½	8·29
Wagon	6	9	2·77
Do.	4½	6	3·75
Do.	3½	4	4·37
a. *Barrett's traction-engine	9	14	4·64
b. Fowler's traction-engine	7½	16	3·12
c. Do. Steam-plough engine	17	22	5·4

The opinion of Sir John MacNeil was that the concentrated load that should be brought on an ordinary road ought not to exceed 5 cwt. per inch of tyre. It will be seen that of the vehicles tabulated above only one exceeds this allowance. But, if the ribbed wheels are used, at least one-third more must be added to the insistent weight per inch. And we have further to remark that if we compare the weight utilised by the steam-roller in compressing and solidifying the road according to the same rule, we only obtain a compressing power of 2·7 cwt. per inch to provide for resisting a crushing or disturbing power amounting in the case of the heaviest engines, to double that pressure. Now, if we compare the surface of an ordinary highway with that of a well-formed macadam road, freshly solidified by the passage of a steam-roller, it will at once strike those who are accustomed to drive, to haul, or to make or make or maintain roads, that such a pressure as $4{\cdot}64 + \frac{14{\cdot}4}{3} = 6{\cdot}18$ cwt. per inch of tyre is a very destructive energy to be brought to play on the surface of a road.

Sir John MacNeil's comparative estimate of the causes of the wear or injury to roads by different agencies are as follows:—

	For coaches. Per cent.	For wagons. Per cent.
Atmospheric action	20	20
Wheels	20	35·5
Horses' feet	60	44·5
	100	100

Now, if we regard the difference in weight at the point of contact when the mechanical fulcrum for traction is exerted, by comparing the area of a horse's shoe with that of the tyre of a ribbed wheel, it will become apparent that the elements of the problem are so changed, when the heavy wheel is made the propelling power, that we are not safe in verging from experiments made on loads propelled by the one method to the results of loads propelled by the other.

A horse weighs, on an average, about 11 cwt. Each of his shoes places on the ground from 48 to 52 square inches of iron. Let us take it at 50 square inches. This will give a pressure of 24·6 lb. to, say, 25 lb. per square inch. If we compare this with the lowest pressure at which we have previously arrived, in the case of Barrett's Engine, the ratio is more than three to one in favour of the horse. Per contra, we have to regard the hammering action of the horse's foot, as compared to the rolling motion of the heavier weight. If we glance back at the figures taken from Sir John Macneil, we find that the difference of speed between three and nine miles an hour (or three to one) corresponds to a difference between 44·5 and 60 per cent. of wear, or nearly as three to four. This leads to the conclusion that the loss due to the hammering action cannot be very much more than one-ninth of the total loss of the iron on the horse's shoes; and this again points to the greater economy, as far as maintainance of roads is concerned, of horse-power as compared to that of traction power.

This same inference is borne out by the accounts of the cost of traction engines given in vol. xxxvi. of the Minutes of Proceedings of the Institution of Civil Engineers. There the cost of an 8-h.p. traction engine is brought out 4·4d. per ton per mile of useful load. A second statement comes to 6d. per ton per mile; a third, to 3·2d. per ton per mile, giving an average cost of 4⅛d. per ton per mile. Any horse-master is aware that this is some 50 per cent. more than the price at which he can convey useful load by horses. A horse will pull a ton for twenty-five miles in a day over a fair road, or eight times that weight on a canal (in good order) for the same distance. The horse-power, other things being equal, is thus the cheapest as far as regards propulsion alone. When we come to take into account the cost of maintenance of way, we are of opinion that the economy of horse-power is, in nine cases out of ten, very much greater than that of steam traction. If all our men of inventive genius would make a point of staking out the ground over which they propose to range by the accurate statement of controlling facts, much heartburn and loss of time would be saved to them, and much service would be done to the country by preventing them from wasting their valuable energies. To show what is known is the first step for him who proposes to add to the fund of human knowledge.

* *a.* On driving-wheels, 6½; *b.* ditto, 5; *c.* ditto, 12.

THE DECORATION OF THE CENTRAL HALL, HOUSES OF PARLIAMENT.

THE question of the completion of the decoration of the central hall of the Houses of Parliament was again the subject, last week, of one of those spasmodic outbreaks of art-criticism in the Lower House which serves to show, in a more or less irritating manner, the inability of our legislators to understand the bearing of such questions, and the indifference with which subjects of that kind are regarded by the average member of Parliament. Proof of the latter fact was sufficiently afforded by the fact that the House was so thin that an attempt was made to count it out during the progress of the little discussion.

On first noticing the report of the conversation (for it could hardly be dignified by the name of a discussion) we imagined, like the Vicar of Wakefield in hearing Mr. Jenkinson, that we had "heard this learning before," and, on referring to the index of the *Builder*, we found evidence of the fact that history had repeated itself so completely that we felt a doubt whether the conversation in the papers last week was really this one or a former one. For it appears that at a sitting in August, 1881, the same three speakers went through exactly the same little bit of fence. Then did Mr. Schreiber (more power to him!) complain, as he did last week, that the decoration should have been left unfinished for so many years, and urge that the other three compartments should be completed in mosaic. Then, as last week, did Mr. Cavendish Bentinck assert that the state of art was so hopeless that no one could do anything, and that the safest and most excellent way of promoting art was to do nothing. Then, as last week, did Mr. Shaw-Lefevre repeat his lesson, which he seems by this time to have got up very well, that there was no hurry about it, that the present mosaic was unsatisfactory, and that the late First Commissioner had been advised by four painters to have the other compartments decorated in fresco. So we are just where we were.

We expressed our opinion at some length on the matter, on the former occasion (see *Builder* for September 17, 1881); we briefly repeat our conclusions now. It is time that the central hall were completed; it is not creditable that it should be left so long unfinished. The existing design by Mr. Poynter deserves far more respect than has been accorded to it. It is urged, as it was before, that the artist himself was disappointed with it, and desired to have it removed. We believe the truth is simply that Mr. Poynter was dissatisfied with the effect of part of the back-ground, in the way of colour, and wished to alter it. To say that the design is a failure, or is not fairly worthy of its position, is to say the thing which is not. The figure of St. George is a fine one, simple and manly in conception, and in keeping, by its severity of style, with the conditions of mosaic and of decorative design in relation to architecture. To sneer at it as a failure is mere ignorance; it is not all we might wish, but a failure it is not. If we regard this opinion, however, as evidence of very erroneous judgment, what are we to say to the recommendation of the late First Commissioner and his committee of artists that the remainder of the spaces should be filled up with fresco; or to the still more absurd suggestion of Mr. Cavendish Bentinck, that they should be filled with paintings in oil? Just what we have said before, and still more decisively we repeat it, that such a judgment shows an utter want of perception of the relation of the proposed pictures to the decorative effect of the whole apartment. In the first place, mosaic alone, of available means of pictorial decoration, has brilliancy enough to cope with the other elements of decoration in the hall already,—the gilding and other colouring, and the stained-glass windows. Secondly, that, even apart from this, one compartment being now filled with mosaic, it is simply ridiculous to talk of filling the others with fresco or any other process. Mosaic is one of the most unyielding methods of decoration; nothing else can be used with it which will not look weak in texture and deficient in brilliancy of colour and richness of tone by the side of it: it is a method of decoration *per se*, and will not bear a rival. It is not, we presume, proposed by any one absolutely to remove Mr. Poynter's mosaic and substitute fresco; but nothing short of that will possibly admit of the introduction of fresco in the other spaces; the effect would be entirely out of keeping, and the mosaic would kill the frescoes. As to oil-painting, it would be waste of time to argue with any one who is so ill-instructed as to propose oil-painting in such a position; a mere school-boy, one would have thought, must have noticed enough of the surface effect of oil-painting to know that it is worse than useless for such a purpose.

The peculiar idea which is promulgated in the course of these art-talks in the House of Commons, that it is no use doing anything now, because artistic power is at such a low ebb, and opinions are so conflicting, is not worth any more respect than the other curious theories that are advanced. If there is no possibility of doing anything good now, by what time do our parliamentary art-critics suppose that there will be such possibility? Do they think it will grow of itself, without effort? What brings out the latent artistic power of a generation is the effort to do something good, which can seldom be entirely fruitless, though it may not lead to all we could wish for. The idea that the power of doing what is best will grow, or be found to be existent in a few years, if we only wait, is one of the most foolish of all the foolish ideas that come to the light on these occasions. Let there be a serious effort made to do something worthy of the place and occasion; that is the shortest way to foster and promote artistic power. To sit down with our hands folded and say "we can do nothing, therefore do not let us try" is, perhaps, the silliest part of all the twaddle which æsthetic members of Parliament are wont to talk whenever an artistic question comes up for discussion. *Ex nihilo nihil fit.*

THE SOCIETY OF BRITISH ARTISTS.

THERE is not much to distinguish the present (sixtieth) annual exhibition of this Society from other recent ones, the usual level of merit being preserved, and the pictures which are of any special interest being the product worthy of the same artists who have been the best contributors (not many of them) for some years past. Among the works in the first room which may be selected as above the general level are "Gloomy Winter," by Miss Flora Reid (12); "Share and Share Alike" (22), by Mr. Hayllar; "A Sunny Afternoon, Brittany" (29), by Mr. Breakspeare; "On the Well" (66), a pretty painting of a girl's head, by Mr. Ludovici; "Clovelly Pier, Morning" (69), a work considerably above the average, by Mr. Cauty; and "The End" (73), by Mr. Laupheimer, a good piece of architectural painting of the interior of a Jesuit church bedizened with rococo.

In the large room there is, indeed, but a small numerical proportion of works that can "give us pause," and some of the central posts are occupied by very unjustifiable productions. "Footpads" (132), by Mr. G. A. Holmes, is a clever study of geese; "Shrimpers," by Mr. Cobbett, is a picture somewhat recalling a former school of English landscape of which Callcott was the foremost name; Mr. Meyer's "Wimbledon Common, Moonlight" (187) is effective and refined in feeling; Mr. Meyerheim's "Selected" (189) shows good painting of cattle; Mr. Cauty's "Instinct" (194) is a clever and humorous study of a dog expressing disgust at the sight of a case labelled "dog medicines." This painting is specially marked "copyright reserved," an indication, we presume, of the "instinct" of the painter as to the style of

subject which illustrated papers most affect, and might be supposed anxious to purloin. Mr. Grace, as usual, is one of the best of the contributors in landscape, his "Farm on the Common" (195) is a very pleasant painting, like most of his; also, like most of his, rather deficient in force. Mr. W. Bromley's large painting, "The Village Anniversary" (232), which holds the central place at the top of the room, is one of those works which raise the wonder how any one who has acquired so much of artistic power as to deal successfully, in the matter of drawing, with a crowd of figures, should nevertheless be unable to invest his work with any sort of real interest. Like so many other pictures that appear in this exhibition, this is a painting so many square feet in area, containing so many figures, and that is all that can be said. Mr. Noble's horses and geese, the latter "Uninvited Guests" (272) are good, and Mr. Couldery's cats in "Comfortable Quarters" (255) are perfect; but because this is only a painting of cats, we presume, it is hung near the ground. The hanging committee do not seem alive to the fact that cats well painted are worth more than human beings badly painted, or they would have hung this work in a central place. Mr. E. Ellis's "Cornwall" (280) is a fine bold coast scene, especially good in the foreground. Mr. Stuart Lloyd's "Moonrise" (268) is a nice landscape; and Mr. C. Cattermole keeps up, in his "Summons to surrender Cathorn House" (306), the class of subject and some of the spirit associated with the name he bears. Mr. Wyke Bayliss sends a fine and careful study of the "Interior of Coutances Cathedral" (290), but he rather mis-appropriates in the catalogue some lines of Tennyson's written in reference to Milan Cathedral, and, as might be expected, not applicable to Coutances. Among other works that are above the average are "Evening, Sussex" (324) by Mr. Geo. Cole; "Early Morning, Holford Creek" (355) by Mr. W. C. Symons; "A Chimney Corner" (357*), a very spirited and characteristic sketch by Mr. Howard Helmick; "Pevensey Church, Evening" (360), by Sir John Gilbert; "A Foraging Party" (373), by Mr. Cauty; "The Kennel Door" (381) by Mr. Charlton; "Across the Heath" (391) by Mr. Glendening (jun.); "Afternoon on the Yorkshire Coast" (404), by Mr. E. Ellis; "Among the Dolomites" (464), a fine Alpine landscape by Sir R. Collier; "The Children's Door, St. Loup, Bayeux" (464), a charming architectural sketch by Mr. Wyke Bayliss"; "An Idle Afternoon" (488), a seaside study by Mr. Owen Dalziel. We were unable to feel interested in any of the sculpture contributions this year; a disappointment, as we have usually found one or two really clever things on the centre table in the large room. There is a good show of water colours, but we have not space to say more.

FRENCH AND FLEMISH EXHIBITION.

THE exhibition at Mr. Wallis's Gallery this spring contains some very interesting works. It would not, perhaps, be very difficult to classify the pictures to be found here under certain types which recur pretty regularly year after year. There is the type of cabinet paintings of peasant life, usually in low tones of colour, of which Seiler and Knaus are representatives; there is the type of brilliant and rather vulgar realism of, not "high life," but luxurious life; there is the landscape-painting, wherein much beauty of colour and finish is bestowed on low, flat, marshy landscapes, as in the works by Heffner and Windmaier; and other classifications of recurring types might be made; that representing, for instance, what may be called the "Jules Breton" type, repeated by Billet and others with various departures from the manner of the original of this class of painting. One painter, however, who has been much represented there recently,—Professor Müller,—is so far a class in himself, and has not his imitators as yet, though we have no doubt he will have before long, as art, like history, tends to reproduce itself. His leading work this year is "An Arab School" (59), an open-air scene, where copper-coloured scholars in varied and happily-adjusted colours of raiment, are squatted on the hot sand outside some town of clay walls and domes baking in the sun, and going through the rudiments under the command of a tall man with a wand of office, who presides over the motley flock. The realism of the whole scene, vivid as it is, is subordinate to an admirable sense of artistic effect of colour, and of contrast and play of character in the figures. We have the opportunity of seeing this year how these brilliant efforts of Müller are worked up,—on what foundations they are built, for the upstairs room contains two frames of his studies; heads of men and women and bits of Oriental architecture. These are remarkable studies for their union of finished effect with freedom of style and variety of character in the heads; the bits of architecture are also admirably painted.

One of the most interesting of the larger and fuller works is Blaas's "A Wedding during the Carnival, Venice" (53), noticeable both for the individuality of the figures, each of whom we feel able to classify socially, and the success with which the painter has harmonised very strong and apparently conflicting elements of colour. The brilliant Harlequin dress of a masqued figure in the centre of the group dominates the whole, and serves to reduce the remainder of the colour scheme to subordination, and enable us to accept combinations, in the way of coloured gowns, which might otherwise seem rather too pronounced. The wedding is evidently one of the "lower middle-class"; the bridegroom is sheepishly happy, and the bride trying to look unconscious; a very plain hard-featured woman in a wonderful dress, sipping her coffee, is evidently the bride's mother. There is a great deal of humour in the picture, a little broad, but not vulgar.

Among the smaller works Seiler's "Rembrandt in his Studio" (55) is admirable. It is the interior of a room full of light and crowded with studio accessories, in which Rembrandt sits before his easel, but half turned away from it, discussing terms of sitting with an old patriarchal-looking Jew, whom we recognise at once as a well-known and prominent figure in one of Rembrandt's pictures from the life of Christ. A pendant to this is an exceedingly clever little work by H. S. Mowbray, an American artist living and working in Paris, "Elixir Vitæ" (63), an interior where two men, young and old, contemplate with earnestness the contents of a bottle which the elder holds up to the light. The painter of this ought to produce very good work in the future. Among other pictures of the same class, to a certain extent, is a charming specimen of E. Frere, "Le Déjeûner" (35), and a very clever work by O. Piltz, "The Hope of the Family" (7), a cottage interior where a lad is playing the violin, criticised by an old man with an artist's head; the contrast between his connoisseur expression and the conscientious and rather timid carefulness of the young performer is very well given.

Israels is represented by a fine work, though not in his pathetic vein, "The Churchwarden" (87), apparently a play upon the English expression "Churchwarden" for a long clay, since the official in question is smoking one of those implements while turning over his registry or other account-books. He is a dry, hard-featured man; his wife, equally hard-featured, sits opposite him; they are a real pair of villagers, however, and the picture is interesting, moreover, from the admirable treatment of the accessories, the lighting, and the manner in which the outdoor scene is half visible through the semi-transparent blind. The same charming treatment of light gives interest to another little unnamed work by the same hand (36), an interior with one figure. Israels has that power which only belongs to a great painter, of giving real interest to detail of this kind without sinking into mere material and tricky realism. Among other peasant pictures, the principal one of what we have called the Breton school is a large work by Billet, "The Harvest of the Poor" (147), a stubble-field scene with gleaners, very peculiar in effect, from the aspect of the four figures all stooping in different directions with the gleaned stalks of corn standing up like bristles from under their arms; but the incident looks real. The tone of the landscape is disagreeable and deficient in aërial effect. Another peasant picture is a very clever though totally prosaic one by Laugée, "Les Choux" (93), a cottage-garden scene, where a woman is watering cabbages; her hands and face are drawn and modelled to perfection, and equally good in its way is the realism of the stream of water from the rose of the watering-can, running glittering off the cabbage-leaves. It seems a pity, however, that so much fine execution should be expended on paintings totally destitute of intellectual meaning or interest.

Among pictures of the higher-life school are two admirably-executed young-lady studies by Kiesel, "Shall I?" and "Work and Play" (9, 26); each is an interior with one figure; in these also the interest is almost solely manipulative, as the figures have little character and the subjects little meaning; but they are very pretty; in the first the effect of light is admirable, in the second the attitude of the young lady, pulling her ball of worsted away from the cat, is charmingly graceful and natural, and her fine hands are very delicately drawn.

Madrazo is represented by a work, as usual at once clever, *criard*, and vulgar, an interior where two very low-looking Spaniards are listening to the singing of an equally low-looking girl: the *bric-à-brac* and other accessories are brilliantly executed. A small and very clever painting of the same class is Pradilla's "Un Bal Masqué Rome" (169), an interior of a theatre with a very boisterous carnival audience, a number of small figures showing marvellously minute care in drawing and character, though in an apparently free and broad style. Maignan's "Un Reliquaire" (148), a life-size half-length of a woman clad chiefly in deep blue and holding an antique chalice with a silver bird-mouth, is a fine piece of rich effect.

Among landscapes Heffner, who has now taken the first place in landscape among the *habitués* of this Gallery, has two fine works,—"A Silvery Eve" (43), and another landscape with two lines of verse as a title (75); the first is a trifle hard, though it is marvellous how much distance he crowds into an inch of latitude, so to speak, on his canvas; No. 75 is the more poetical work. Lommens's "A Heavy Load" (17) is a fine landscape of rather an ordinary and well-worked type,—the "brown style," one may call it. There is a very lovely Corot, lovely so far as it goes, but it is "impressionist" art, "When the Year is Young" (38), and another, "Under Green Leaves" (22), in which there is nothing green, and the colour is entirely false. Windmaier's "White and Gold" (54) is a fine snow landscape with a sunset behind it; and in the way of "landscape with figures" and "landscape with cattle," we may mention "The Farmer's Daughter," by Chialiva (149), and "The Ferry," by Troyon (155), a rich evening scene, with cattle on the shore, recalling Both, only that it is much better than most Boths. Munthe again makes us think that he has never done anything so good as this year; this may be an illusion, but so is his marvellous little picture "Winter Fishing, Norway" (4), where the moon actually shines on ice that one could go and slide on. It would be impossible to carry success of this kind further in painting.

TAPESTRIES OF PETRARCH'S TRIUMPHS.

IN the new portion of the permanent buildings of the South Kensington Museum which have just been thrown open to the public hang three tapestries of unusual size and importance. They are lent by Monsieur Lowengard, a well-known dealer in Paris, and it is probable that they will be purchased by the South Kensington Museum. Few equally well-preserved and remarkable examples of this textile art, which in a way may be said to be to the northern what fresco and wall-paintings are to the southern countries of Europe, exist in this country. At Coventry, in the St. Katherine's Hall, hangs a great tapestry, which has been very completely described by Mr. George Scharf, in a paper read by him some fifteen years ago before the Society of Antiquaries. And Hampton Court Palace has long been famed for its "arras cloths" and Italian tapestries. The country seats of noblemen frequently contain handsome specimens. But no sort of inventory exists to show the student of this class of art-work how he may readily find and consult the materials to assist him in his inquiries. However, this is a matter not altogether under present consideration.

Five centuries ago Petrarch wrote his Sonnets and Triumphs. For the latter he selected six subjects,—the Triumphs of Fame, Chastity, Time, Love, Divinity, and Death. Some 100 years afterwards, or rather less, Petrarch's works were published in a printed form; and a notable copy of his works, embellished with six metal-plate engravings, perhaps by Filippo Lippi, has recently been purchased for the British Museum for the sum of 2,000*l*. Contemporary with these are some smaller sized woodcuts of Petrarch's Triumphs, also in the

Print Room of the British Museum. Towards the middle of the sixteenth century another edition of Petrarch was issued, with little woodcuts in a freer and more florid style, also of the Triumphs. Titian used the subjects of the Triumphs for a series of paintings, and seventeenth-century engravings have been made from these. The Flemish engraver, George Pencz, engraved the Triumphs in the sixteenth century. Altogether, then, a hasty search shows that there is no inconsiderable series of various compositions illustrative of the Triumphs.

Turning now to Felix Summerly's Handbook for Hampton Court, we find a detailed description of the tapestries in the Withdrawing-room of Wolsey's Great Banqueting-hall; and there is no doubt that amongst these are the "three pieces of arras of the three fatall ladies of Destenye lyned with blue buckeram," as described in Henry VIII.'s inventory. As a matter of fact, however, there are more than three pieces in which the Fates, Clotho, Lachesis, and Atropos, are figured. There are, indeed, four. Felix Summerly rightly divined that the subjects represented in them were "Virtue's Triumph over Sensuality," "The Triumph of the Fates," "Renown summoning the illustrious Dead in opposition to Fate," and "Renown seated at the feet of Father Time, and submitting herself to his slow Influence." But he does not appear to have been acquainted with the analogy between these episodes and those described by Petrarch. Hence, as all subsequent writers of guides to Hampton Court have followed Felix Summerly, the four tapestries in question have not been identified as representing Petrarch's Triumphs. The three tapestries now on view at South Kensington fortunately furnish the proof of this identity. Although the borders of the Hampton Court tapestries, consisting chiefly of panels containing Tudor roses and leaves, differ from those at South Kensington, the subjects of the main portions of the tapestries are in both cases alike. In fact, both sets of tapestries were evidently worked from the same designs. Those at South Kensington are finer in work and in material than those at Hampton Court. In spite of the wretched condition into which those at Hampton Court have fallen,—they are almost unintelligible through the dirt which begrimes them,—enough can be seen to find that two of the four tapestries are alike. These two are of the Triumph of Death, and we find it in one of the South Kensington series. The third is the Triumph of Chastity, also at South Kensington; whilst the fourth is the Triumph of Time. In the Kensington series, the third tapestry is of the Triumph of Fame, so that between Hampton Court and South Kensington we have four of the six Triumphs, namely, those of Chastity, Fame, Death, and Time. A fifth, namely the Triumph of Divinity, is said to be at Rheims Cathedral. It would be interesting to discover where the sixth Triumph, namely, that of Love, can be.

Processional Triumphs often occur in what are sometimes classed as the lesser arts, such as book illustrations and carvings. One recalls to mind the panel of an ivory casket belonging to Mr. John Malcolm, of Poltalloch, carved in low relief, with a Triumph of Death. "Two Tuscan oxen, with more than the solemn seriousness of their race, are slowly dragging the four-square tumbril or chariot of death over the prostrate bodies of prince and simple citizen, matron and maid. The fore-wheel rests upon the low-lying form of the pope himself; whilst the hinder wheel is just passing over the body of a beautiful young girl, who has all but realised womanhood." Then, again, but of a happier, less lugubrious vein, there are the Triumphs depicted in the famous "Dream of Poliphilo," written by the Franciscan friar, Columna, about 1467. It is a question in dispute who was the designer of the illustrations to this curious and ecstatic work. The particular woodcuts to which we are referring are those called the first, second, third, and fourth Triumphs. All are processional in character. Six centaurs in harness, and playing various trumpets, precede the car upon which Europa and the Jovian Bull are placed. Leda and the Swan, drawn by six elephants, come next. Then follows Danae under her legendary shower of gold seated upon a car drawn by six unicorns. Six tigers drag the last car, upon which stands a vase containing a bush; an object of reverence for the Bacchanals and Nymphs who form its escort, bearing in their hands Dionysiac trophies of pine-cones, leaves, branches, &c. These episodes, portrayed with so much life and beauty of ornamental detail, have no savour of Gothic stiffness, and yet they are clearly allied in idea and plan of arrangement with the tapestries of the Petrarch Triumphs. These, there can be little doubt, must have been designed by some Flemish artist strongly imbued with the sumptuousness in colour and form of the costumes and accessaries which belonged to and formed part of the material glories of the fifteenth-century Italian aristocrats.

The tapestry of the Triumph of Chastity is dated 1470. As is usual in many of the episodal compositions painted and drawn at this period, legends upon labels are introduced to describe what is taking place. The Hampton Court legends are almost illegible; but those at Kensington are distinct. Each tapestry bears its title in old French in the centre of the upper border, thus:—"Le (?) triõphe de chasteté," "Le (?) triõphe de boñe renomee," and "Le (?) triõphe de la Mort." In each case the Triumph of the particular virtue or fatality is preceded by the overthrow of some alien fate or antipathetical influence, so that there are two incidents in each tapestry. In the blaze of fine dresses figured with designs of that style which is so frequently seen in the cut velvets and cloths of gold and silk, the damasks and brocades of Lucca, Genoa, and Venice in the fourteenth and fifteenth centuries, and of rich groupings of figures, such as Julius Cæsar, Penelope, Dido, Alexandre, Roi Priam, Chipion, Lafican (Scipio Africanus), Rolant (the famous Orlando de Roncevalles, so sacred to Don Quixote), Salatino (Saladin) Paris, Hercules, Põpee le Grant, Lucretia, and many others, the martial heroes clad in resplendent armour, it is at first sight almost puzzling to discover what all the gorgeousness is intended to represent. But the two classes of incidents,—an overthrow and an apotheosis,—above alluded to soon reveal themselves.

In the Triumph of Fame (*Bonne Renommée*), the first car drawn by four fabulous buffaloes or oxen, Atropos is falling from her seat, impelled therefrom by the blast of the trumpet which a winged figure of Fame blows into her ear. On a stage below is Clotho asleep; while her second sister, Lachesis, also fallen asleep, is being crushed under the wheel of the chariot, which also threatens, among others, a sleeping pope. Then comes a crowd of men and women in handsome costumes and head-dresses, knights fully equipped, jewelled and golden panoplies. An emperor and empress ride near a car upon which is Fame on a pedestal, with Atropos at her feet, drawn in triumph by four splendidly caparisoned elephants. The remainder of the composition is filled up with richly-costumed figures, notable in mythological, classical, and chivalresque history.

Passing to the triumph of Chastity, it will be seen that this composition commences with the dethronement of Cupid (Amour) by Chastity. Cupid, upon a pedestal, is in a chariot drawn by four white horses; but Chastity, riding by on a unicorn, catches Love by the hand and unseats him. It is interesting to observe that the name inscribed near Chastity is "Laura," who, to the mind of the poet, was the incarnation of perfect purity and chasteness. It must always remain a matter of speculation whether he would have wished his adored Laura to have been depicted and labelled as she here is, no matter how much this may be an evidence of the sympathy which the designer had for his subject, or of the reverence for the master mind of the poet. The second incident of this "cloth" is represented by Chastity standing upon her triumphal car, with Love bound at her feet. Her car,—drawn by unicorns, and ridden by Cupids bearing laurel branches,—proceeds amidst a throng of grandees, and passes a triple-arched Decorated Gothic temple, or *retable*, in the background. This temple is dedicated to Diana, who stands under the central canopy. In the further distance, and upon a high-pitched grey roof, may be seen the date, 1470.

The Triumph of Death is symbolised first by the overthrow of Chastity by Atropos, and then by the "three fatal sisters of Destenye" seated in a car in which lies the dead Chastity. Bullocks draw this car over a mass of dead and dying. A mounted knight heralding the extinction of life and bearing two lances, one labelled Fortitude and the other Malheur, cleaves a path through the crowd of illustrious defunct. It is a misfortune that through a strip having been cut off the right side of the Kensington tapestry of the Triumph of Death, the mounted knight and a portion of the dead crowd are lost.

Luckily it exists in the corresponding specimen at Hampton Court, where we must go to gain an idea of the Triumph of Time. This is altogether different in treatment from the previous tapestries. The magnificence of terrestrial glories, historic facts, and ingenious materialisations have been pressed into service for those; but now the designer, for his Triumph of Time, draws upon his imagination of ætherial entities, and presents us, as a salient feature of the upper part of his design, with a semicircular arrangement of figures robed in white flowing folds typical of the hours, and floating before the zodiacal signs Gemini, Cancer, and Leo, into which the sun is entering. The first group on the left indicates Fame threatened by Time, and the second, near the centre of the design, is the triumph of advancing Time, an old winged cripple supporting himself with a crutch; the left crutch he carries in his hand, and he stands in a bent attitude over Fame vanquished. Both figures are on a car dragged by winged horses,—Pegasi.

This, then, is but a brief account of some finely-designed works of art, carried out in a process,—tapestry-making,—which is showing signs of revival even in these days of paper-hangings.

A chief point not to be lost sight of is the deplorable condition of the Hampton Court specimens. If they are worth showing to the public, they are, for this elementary purpose, at least, worth cleaning and properly preserving. Unfortunately, other tapestries in the palace want looking to and cleaning, and official custodians may shrink from beginning with one unless they are prepared to go through with the others. A sum under 500*l.* would perhaps be enough to cover the cost of cleaning the dirtiest of the Hampton Court tapestries; and a sum under 200*l.* would suffice to meet the expenses of cleaning and restoring the tapestries of the Triumphs of Petrarch. We commend the matter to the attention of the Lord Chamberlain's Department, as well as to all who are interested in preserving the relics of ancient expressions of art. The proverbial irony of time would be pregnant with significance if time were now lost in preserving the Triumph of Time.

THE RESTORATION OF SPALATO CATHEDRAL.

THE cathedral of Spalato or Spalatro (Dalmatia) was originally a part of the large palace erected by the emperor Diocletian at the beginning of the fourth century, near the town of Salona, and it is probably owing to this early change to its later destination that one of the most important Roman monuments of Dalmatia was preserved from destruction and decay. The inhabitants of Salona, driven from their city, destroyed by the Avars, found a refuge in the vast palace, which was protected on the land side by fortified walls, where they settled, adapting the existing buildings to their wants, and thus founding in the middle of the palace the new town of Spalato.

On both sides of the vestibule of the residence of the emperor Diocletian, surmounted by a cupola, there lay, symmetrically arranged, two courtyards, in the centre of each of which a monumental, temple-like building had been erected. Those edifices could be adapted to the services of the Christian Church, which, as recent excavations at Salona have proved, formed a numerous community in that town. The vestibule above mentioned was converted into the atrium of the church; the building in the eastern courtyard, also covered by a dome-shaped roof, probably the mausoleum of Diocletian, became the cathedral; and the building in the courtyard opposite, a small rectangular temple, erected in the form of a so-called Italian prostylos, was made the baptistery. Although by this change, which took place in the seventh century, the Classic buildings were saved and preserved, their history, extending over sixteen centuries, has left unmistakable traces upon it. More than the tooth of time, which has little affected the beautiful stone of which the buildings are erected, the hand of man is responsible for the vandalism which has been perpetrated. The damage done was of such a description as to render a thorough restoration necessary; and the architect, Professor Alois Hauser, was instructed by the Austrian ministry of education to draw up plans for that purpose. From a lecture on his studies, and the present state of the work of restoration, recently delivered in

the Austrian Museum by the Professor, the particulars which follow have been extracted.

Spalato Cathedral is a dome-covered building, the exterior of which is octagon in form, the interior being circular. The edifice rises upon a high basement, which, projecting all round, serves as a stylobate for a peristyle of twenty-four columns with entablature and coffered ceiling. Towards the great atrium, before the entrance to the church, there was formerly a flight of stairs with pediment, serving as a portal to the mausoleum. Over the basement, enclosing crypt-like vaults, rises now the cella of the Roman building, or the present church. The space enclosed had a diameter of 45 ft., and a height of 71 ft., the walls consisting of large ashlar stones, 3 ft. thick. The walls are divided in the interior by eight pairs of isolated columns, placed above each other, which, together with the bends of the beams, divide the wall vertically, and thus show up also in the interior the octagon form of the building. Between the columns of the lower story are eight large niches, four semicircular, and four (with the door niche) rectangular. A frieze 3 ft. wide runs round below the beams of the second story. The whole building, both inside and out, is of stone. The shafts of the lower order, 18 ft. high, are monoliths of Egyptian granite; those of the upper order, 11 ft. high, also monoliths, of a beautiful dark porphyry. Only the entirely closed cupola is of brickwork and concrete. Over the entrance-door, formed of massive stones, richly carved, is placed the only original window, with semicircular head.

The architecture of the building is, so far as regards effect produced by large masses and proportions, still purely Roman; but there are interspersed features which do not occur in Classic works. Thus, we find arches immediately upon isolated columns, or semicircular forms between straight lintels over columns,—all arrangements common in the later Old Christian, Byzantine, and Romanesque styles. It is worthy of note that the treatment of profiles and ornamentation differs from Roman buildings by an absence of bold forms usually found in them; it displays a relationship to the forms of the Hagia Sophia, and renders it probable that the building was the work of masons brought from the East, perhaps from Greece, in support of which assumption it may be cited that all the masons' marks have the form of Greek letters, while the bricks of the cupola have Roman stamps.

The transformation of the monumental building into a church has been accompanied by important changes, caused by the efforts to enlarge it. In the seventeenth century the niche opposite the entrance-door was broken through, without regard to the heavy superincumbent masses of stone; the corresponding columns of the outer colonnade were taken down, and a very plain rectangular choir was added. But this was only the beginning of the vandalism committed in the interior, for shortly afterwards wooden galleries were fixed over the cornices of the two orders, a wooden organ-loft was erected over the entrance-door, and a sacristy was jointed on, which cuts into the peristyle quite haphazard. As late as 1770, the northern niche of the dome was broken through, and a chapel erected, projecting into the colonnade.

But by the side of these alterations without artistic value which disfigure the building, there must be mentioned some additions of great merit, and which will consequently be left undisturbed in the work of restoration which is proceeding, as there is no intention of retransforming the Roman temple or the mausoleum into its original state.

The latter class of additions in the interior of the church includes the pulpit, executed in various-coloured marble, richly carved, one of the most beautiful works in the Romanesque style; next, the Romanesque doors, adorned with figures in relief; and, finally, two Veneto-Gothic altars of white marble. But the most important addition is the tower in the Romanesque style, begun in the thirteenth century. Unfortunately, the original work was placed immediately between the eastern row of columns of the atrium and the church entrance on that projection of the basement which in Roman times supported the pediment-hall and the stairs of the mausoleum. The introduction in this spot of the tower, in the lowest story of which the stairs leading to the cathedral entrance are very picturesquely placed, has caused the interruption of the peristyle, the destruction of the pedimental colonnade, and other disadvantages which it will be difficult to meet in the work of restoration.

As already indicated, the chief aims of the restoration will be the preservation and renovation of the original building, as well as the retention of the artistically valuable additions of later times. The work is divided into three portions,—the restoration of the interior, the tower, and the exterior. At the same time, it will be necessary to clear the cathedral of its excrescences, consisting of a number of small houses, which have been built into the colonnade, and are almost hiding from view the building.

An examination of the interior of the church showed that the latter was in a most dangerous condition, caused by the capitals and mouldings, which must have been injured at an early date, being repaired with stucco on an extensive scale. The wooden galleries pressed upon these stucco coverings, and in many places the latter had parted from the stone, a mere touch with the hand sufficing to send down heavy pieces. As a measure of public safety, the church was closed in 1880 until the completion of the repairs, and shortly afterwards the whole interior was provided with scaffolding. In restoring, the damaged places were not again plastered up with stucco, but repaired with a material found close by, a beautiful marble-like limestone, the original Roman mouldings and capitals, of which a good many are still perfectly preserved, serving as patterns. The wooden galleries and the organ-loft were at once taken down; the only Roman window was reopened, and the damaged parts were cleared away. During the latter work, it was found that the greater portion of the Corinthian capitals, 3 ft. high, of the lower order had burst vertically, owing to the insertion of heavy iron dowels for joining the capitals to the column shafts. Respecting the construction of the outer walls, which appear to have been erected without the use, exteriorly, of mortar, the discovery was made at the same time that interiorly a mortar was largely employed which contained no brick-dust. The work of inserting new stones has been recently commenced, and it is hoped that, under favourable conditions, the works in the interior of the cathedral will be completed in the course of next year.

The first steps have also been taken for restoring the tower. Of the five airy and open-work stories of the same, which support an octagon cupola of Renaissance origin, the two upper stories especially are in a very bad condition, the consequence of a mistaken construction and many faults in the ground story. The plans of restoring the tower will be prepared from a careful survey which has been made. As regards the exterior of the cathedral, it is intended to reinstate all the columns of the peristyle, and to remove all the buildings which have been erected against it, as well as the domical roof, which is not a work of Classic times. With the erection of a new sacristy at the rear of the choir, the works of restoration will be completed.

MEASURES AGAINST SCAFFOLD ACCIDENTS.

New and special instructions have just been issued by the Paris Prefect of Police, so as to reduce the too frequent occurrence of accidents in the building of houses, &c. The local chiefs of the police are ordered to visit every scaffold in their district before work is begun. Suspended scaffolding is to be maintained by three instead of only one rope, and clothes must be so arranged as to prevent dust or fragments from falling into the street. In the event of any workman or pedestrian being wounded, the building contractors are to be at once prosecuted before the police or correctional tribunals. Since Zola depicted the fall of Coupeau from the house-top, and since the reproduction of this scene of *L'Assommoir* on the stage, the public has manifested special concern respecting accidents of this nature. It has even been suggested that masons should be protected in the same manner as acrobats, who perform on the trapèze. A net, it is urged, must be placed round buildings in course of construction to catch the stray workmen who chance to fall off the scaffold! Such extreme solicitude may seem somewhat eccentric and exaggerated; but, among our neighbours, there is a serious question of rendering this precaution compulsory.

THE SANITARY CONDITION OF LÜBECK.

The Medical College of Lübeck recently instituted a thorough examination into the effects of the sewage of the city on the neighbouring waters into which it is conducted, and Herr Schorer has published a comprehensive treatise on the subject which is founded on his personal experience in the technical direction of these researches. From the details furnished, it would seem that samples of the water from the two rivers which flow round Lübeck (the Trave and the Wakenitz) were taken at different localities and periods, and in greater or less proximity to the outflows from the drains. It would seem, however, that the sewage had scarcely any influence on the water. Recently, water-closets have been placed in all the houses in the city and suburbs, and though these communicate with the drains, the character of the sewage does not seem to have been changed in any notable way. According to the *Hamburger Nachrichten*, the quantity of water in the two rivers mentioned is sufficient to produce such a dilution of the sewage as is implied by the facts quoted, and it is estimated that even with double the present number of inhabitants (about 45,000) the existing state of things would not be materially altered. Some English chemists would say very differently.

It is recommended to maintain the actual system of pottery-ware pipes, and to conduct these into the rivers at suitable intervals, as has been the case hitherto. The use of large main drains is disapproved. In order that the pipes may be kept as free as possible, the regular cleaning of the streets is alluded to as being necessary in order to prevent the accumulation of sand, &c., in the drains. This is specially named with respect to the suburbs, where the fall is slight.

THE BERLIN HYGIENIC EXHIBITION.

With the near approach of the date fixed for the opening of the above exhibition, public interest in Germany has become greater in all that appertains to it. From a technical point of view much has been written on the comparative details of the new structure and of that which was destroyed by fire on May 12th, 1882. In a comprehensive article on the subject, the *Deutsche Bauzeitung* lately remarked that the occasion in question was a turning-point in the history of such constructions, as, in future plans, the fact could no longer be ignored that light wooden erections (such as had hitherto been customary) were liable to sudden destruction by fire.

In the construction of the new building, designs were invited from twenty firms in the iron trade; the promoters of the scheme having determined upon stone and iron being the materials. The firm of Dr. Pröll and Scharowsky, of Dresden, sent in a design which was accepted, and have carried out the work in association with Herr A. Druckmüller, of Berlin, as well as some other manufacturing firms. As might have been expected, there were various changes found necessary in constructive and artistic details as the work progressed, and the general arrangement of the building also underwent certain modifications.

The general plan of the exhibition is a chessboard arrangement of twenty-five squares of equal size (cells), each of them being 62 ft. 4 in. in length and in breadth. In the centre of four of these are square open courts of about one-third the size. The cells are in five rows of five each, and the central nave is prolonged by three cells. From the two outer naves covered passages lead to the second of the three extra cells just alluded to. The twenty-five main cells are to be devoted to the special purposes of the exhibition, while the extra cells and passages will be used as promenades, refreshment-rooms, &c. The outer cell of the three which adjoin the central nave is the principal vestibule, and has a cupola. It is in this portion of the work that the principal changes in the artistic details have taken place, and for these it is remarked that the credit rests with Messrs. Kyllmann & Heyden, architects.

According to the *Berlin Börsezeitung*, the thirty-eight arches of the Stadtbahn which enclose the site will be devoted to the reception of various exhibits, and to kindred purposes. Amongst the numerous special displays in the vicinity of the main building are illustrations of the process of cremation, models of filtering-

stations, a miniature theatre, a music pavilion, a school of cookery, a Chinese tea-house, a meteorological pavilion, a diver's basin, &c. The erection of the model dwelling-house is being actively proceeded with, as well as the preparation of a large concert-hall.

The walks in the interior of the building will be laid with small stones and gravel, in a similar manner to the public parks, and will be made a little higher than the spaces around them. All the woodwork will be impregnated with a fire-resisting solution.

THE PALACE OF JUSTICE AT HAMBURG.

THE wealthy and finely-situated Hanseatic capital on the Elbe has hitherto been remarkable for the comparative rarity of large monumental buildings, public or private. The Senate and the Citizens, the Bourse and the Post Office, have all been compelled to make the best of edifices which they had entirely outgrown. Hamburg, in fact, is surpassed by many far smaller cities in Germany in its public buildings. This same defect had been long and acutely felt in the department of justice, and the evil had become so great that it was absolutely necessary to provide a remedy. Accordingly in the year 1877 a committee, composed of members of the Senate and of the Burgerschaft, proposed that a Palace of Justice should at length be erected, suitable in character and dimensions to the requirements of the city. It was proposed that the site of the edifice should be a large vacant piece of ground near the Botanical Garden, and that it should be large enough to accommodate every court from the lowest to the highest instance in the city, as well as a house of detention. The project was adopted; 3,000,000 marks,—that is, 150,000*l*.,—were voted for its realisation, and within a compartively short space of time the present stately pile of buildings called the Palace of Justice has been called into existence.

The style is the German Renaissance. It is simple, but dignified. The principal façade has a length of 374 ft. The height is 117 ft., and the whole effect is decidedly imposing, being, if anything, heightened and brought out more fully by the beauty of the surroundings, especially the gardens on the old ramparts. The material used in the building is the reddish yellow bricks of Silesia; the ornamental parts being executed in Weser sandstone, granite, and dolomite. The roof is constructed of iron, and covered with slate, and inclosed with iron lattice work. Great attention was paid to the interior, and except that the acoustic qualities of some of the larger halls are defective, the internal arrangements are admirable. Altogether the palace contains 102 rooms; the largest is the Court of the Landgericht, which covers 238 square mètres; the next in size being the Schwurgericht, 219 square mètres. The fitting of the audience halls is simple, yet artistic and dignified. The furniture cost 4,000*l*. The airy and vaulted corridors are paved with Mettlach clay tiles. Behind the palace stands the prison, which is built on the same principles as the Central Prison at Fühlsbuttel. The arrangements secure the strict separation of male and female prisoners. The only communication between the two parts of the establishment is by a subterranean passage, accessible only to officers of the establishment. The separate cells, as well as the rooms for the accommodation of a number of prisoners, are all, without exception, well lighted, airy, and spacious. The ventilation and warming are provided for by means of the most modern appliances.

THE MUNICH ART EXHIBITION.

THE Hellenic Government has been displaying a marked interest in the approaching Art Exhibition in Munich. The Minister of the Interior has addressed a circular to the various provincial authorities, instructing them to inform artists of the exhibition, and to stimulate participation in it, it being remarked that the Government will do all in its power to facilitate Greece being worthily represented at the above international display. Appropriate reference is likewise made to the ancient fame of the country as a home of art, and the hope is expressed that the representative works which are to be sent to Munich will show that Hellenic genius and skill have not lost their ancient characteristics.

ST. MATTHEW'S, BAYSWATER.

THE design for St. Matthew's Church (which is situated in St. Petersburgh-place, Moscow-road, Bayswater, very near the Queen's-road Railway Station of the Metropolitan Railway) was selected in a limited competition, being the only one submitted that met the views of the committee, which were to permanently retain the existing vestry, and the old church for divine services as long as possible during the building of the new, thus keeping the congregation and saving the cost of a temporary building elsewhere. The requirements necessitated considerable departure from the usual arrangement of plan, especially as the site was limited and the number of sittings large, viz., 1,450. The nave has a clear width of 49 ft., the length being 99 ft., the width across the transepts is 85 ft., and across the aisles, which are only passages, 67 ft. The vicarage-house was removed early in 1881, and the foundation-stone was laid by Mrs. Allcroft in June of the same year; the outer walls were built just beyond the old walls, and the nave piers were erected in the old church one by one, much to the amazement of the congregation, the seating being removed only to the necessary extent, thus literally building one side of the new church through the old; the top of the nave caps being a few inches above the top of the gallery front; the piers were left to consolidate, and after a time the centres were fixed and the arches turned. The aisle walls were then carried up, the old gallery floor being retained to protect the congregation underneath; the other side and end galleries were left intact. The old roof principals were supported by the new walls on one side, the other resting on the old walls as before. The clearstory was then continued to the height for the new roof; a platform was constructed to protect the old slating and for framing together the heavy principals,—the span from out to out was 53 ft.,—fortunately they were all securely fixed in position without accident, and the slating was executed before disturbing the old roof. The way the works progressed may be understood from the fact that the last sermon was preached in January, 1882, and the old church removed, new seating fixed, and the church consecrated by the Bishop of London on May 20th the same year.

The style of architecture is Geometrical. The entrance porch, aisles, and transepts are vaulted, the baptistery and chancel being executed in stone. The transepts are kept the same height as the nave arcade, so as not to break the line of clearstory windows. The clearstory and the nave roof are the great features of the interior, the principals and the bays being decorated by flowers and scroll work in gold on a dark ground.

The pulpit designed by the architect, and executed by the builders, has shafts of Irish green and red marble, with panels of alabaster. The inscription at the base is "In memoriam, Archdeacon Hunter, the gift of Mary, the wife of John D. Allcroft." The statuettes under the canopies are St. Paul, St. Matthew, St. John the Baptist, our Lord, St. John the Evangelist, and St. Peter. They were executed by Messrs. Farmer & Brindley. The supporting angels were carved by Mr. Lawlor.

The baptistery, five stained-glass windows in the church by Messrs. A. L. Moore & Co., font, walnut canopied cover, and the reredos in the chancel, are the gift of Mr. Hunter.

The stained-glass windows in the chancel, executed by Messrs. Clayton & Bell at a cost of 500*l*., are a memorial by the parishioners and friends to the late vicar, the Venerable Archdeacon Hunter, who had laboured for fourteen years among them, and died whilst the works were in progress. A marble bust of the Archdeacon by Mr. Lawlor is fixed in the south aisle.

The reading-desk is of Caen stone and alabaster richly arcaded and carved.

The lectern and platform are the gifts of Miss Davidson, executed by Messrs. Hart, Peard, & Co.

The exterior is faced with Bargate rag-stone, with Box-ground Bath-stone dressings; the sides of the church, being hidden from view, are plain, but the front has all the work richly moulded.

The tower and spire, including the vane, have a total height of 240 ft., so as to be visible above the lofty houses of the neighbourhood. At the angles at the belfry-stage are figures, 6 ft. 6 in. high, of the four evangelists, the symbols being under. The clock-dials, 6 ft. in diameter, are of stone, the numerals being gilt, the clock and chimes being fixed by Messrs. Moore, of Clerkenwell.

The whole of the works have been satisfactorily carried out by Messrs. Dove Brothers from the designs of the architect, Mr. John Johnson, A.R.I.B.A., 9, Queen Victoria-street, Mansion House. The foreman of works was Mr. Buck. The gas-fittings were executed by Messrs. Jones & Willis; the heating-apparatus was fixed by Mr. Grundy; and the general carving was executed by Mr. Baird from the architect's sketches. The organ is placed on a large gallery at the south side of the chancel, the old instrument being enlarged and refixed by Messrs. Bishop & Son.

CHAPTER-HOUSE, LINCOLN CATHEDRAL.

THE fine thirteenth-century arcade is from the vestibule leading to the Chapter-house, and terminates at the west end with a triforium over the entrance which formerly led to the cathedral library upon the north side of the cloisters.

Above the triforium is a clearstory lighted by a large unrelieved round window, which, without doubt, was intended to be ultimately filled in with stained glass.

The arches upon either side of the entrance have subsequently been filled up with rubble plastered, and doors added to the entrance archway.

The whole Chapter-house suffers from a layer of yellow wash.

The drawings from which our illustrations are produced were made by Mr. William Alfred Pite, to whom the Pugin Travelling Studentship has been awarded this year.

CHURCH, GRAAFF-REINET, SOUTH AFRICA.

THE town of Graaff-Reinet, the principal town in the province of that name, is situated on a branch of the Sunday River, which flows into the Indian Ocean a few miles to the eastward of Port Elizabeth. It is a flourishing inland centre of business, boasting several banks, churches, and other public buildings. It is 489 miles from Cape Town, 160 miles north of Port Elizabeth, and 150 miles west of Grahamstown. The population numbers about 8,000.

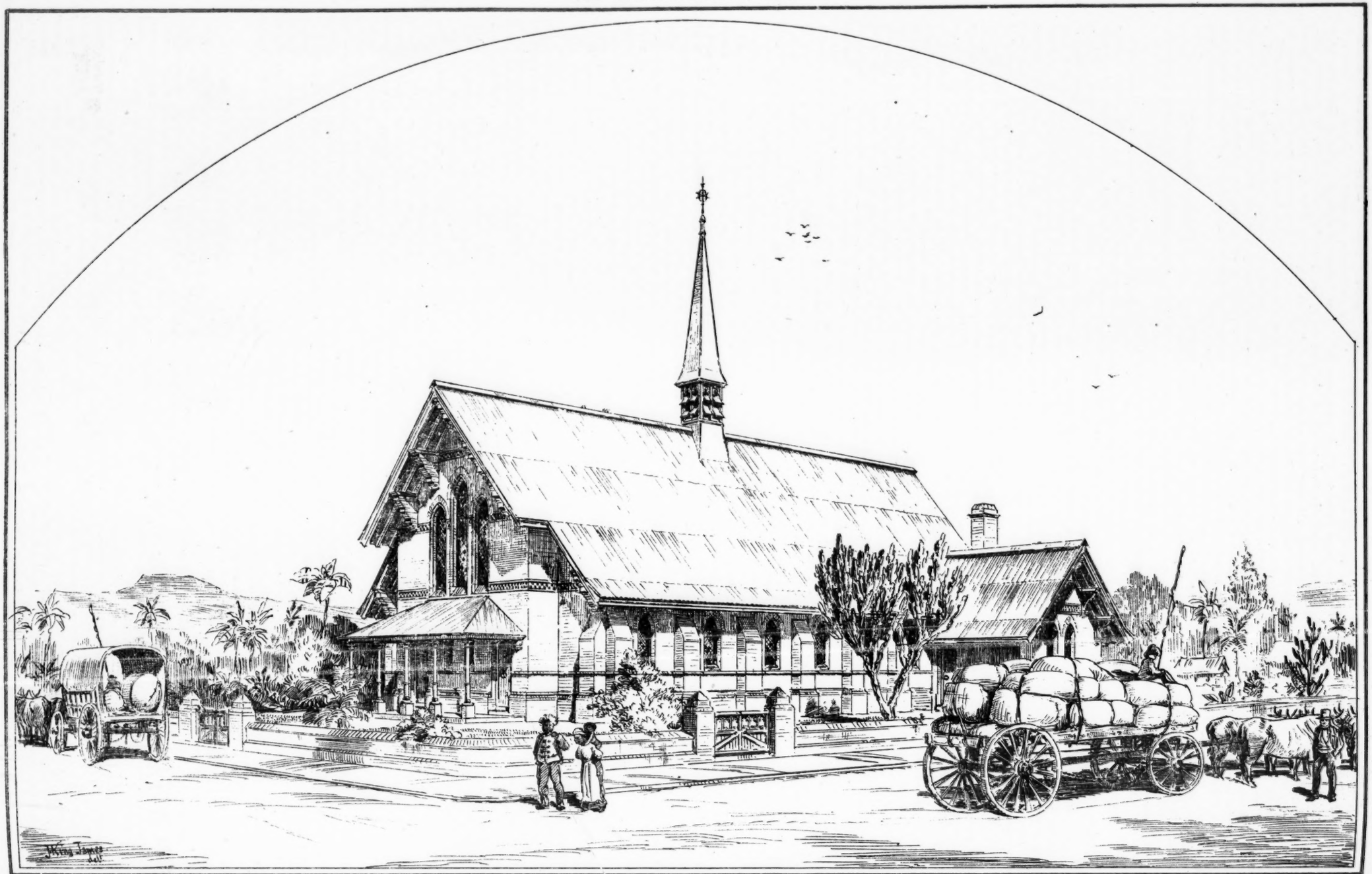
The materials proposed to be used in the erection of the church will be almost exclusively brick and timber, there being no stone quarried in the neighbourhood. The roof will be covered with corrugated iron, and in order to mitigate the effects of the semi-tropical sun, there will be a space underneath the corrugated iron, so as to allow of a free circulation of air between the iron and the boarding which covers the rafters.

The plan of the church, which is to accommodate 450 persons, is a simple parallelogram in shape, with open benches in the usual manner. There is an organ recess and orchestra at the east end, and a large vestry on the south side. The spacious porch at the west end is designed to afford protection from the sand-drifts and heavy rains.

The church is to be erected for the Rev. J. J. Doke, and Mr. Jno. R. Nichols is the architect.

THE OPENING OF THE WELLESLEY BRIDGE, LIMERICK.

THE above structure, which has been known as a toll-bridge for nearly half a century, was on Monday opened free to the public by the Mayor of the above city, attended by the Corporation, Harbour Board, and leading citizens. The structure was erected at a cost of 80,000*l*., and, connecting Limerick with Clare county, is one of the handsomest of its kind, resembling the Pont Neuf of Paris. The money for its erection was advanced by the Government, but recently the Clare and Limerick grand juries guaranteed to pay by presentments passed at each assizes the balance still due. An Act of Parliament was passed last session giving effect to this arrangement, and the Board of Works signified that the bridge could be declared open forthwith. The opening was celebrated by Corporation festivities and general rejoicings.



FOR THE REVD J.J. DOKE. Church at Graaff Reinet South Africa. J.R. NICHOLS ARCHITECT ALBERT BUILDINGS QUEEN VICTORIA ST LONDON EC

C.F. Kell, Photo-Litho. Castle St Holborn, London, E.C.

Wyman & Sons, Printers, Gt Queen St

The Cathedral of St Mary of Lincoln

The arcade level

The joints here are most indistinct

DOORWAY AND THE CHAPTER

TRIFORIUM IN HOUSE

AD 1225

Note
The arch head was formerly filled with a Red Glass
of Early Date which when ...
from ...

Base of Clerestory Shaft

Base of Triforium Shaft

Base of Arcade Shaft

Base of Chapter House Shaft

Base of Vestibule Shaft

Base of Cloister Shaft

Base of Vestibule Shaft

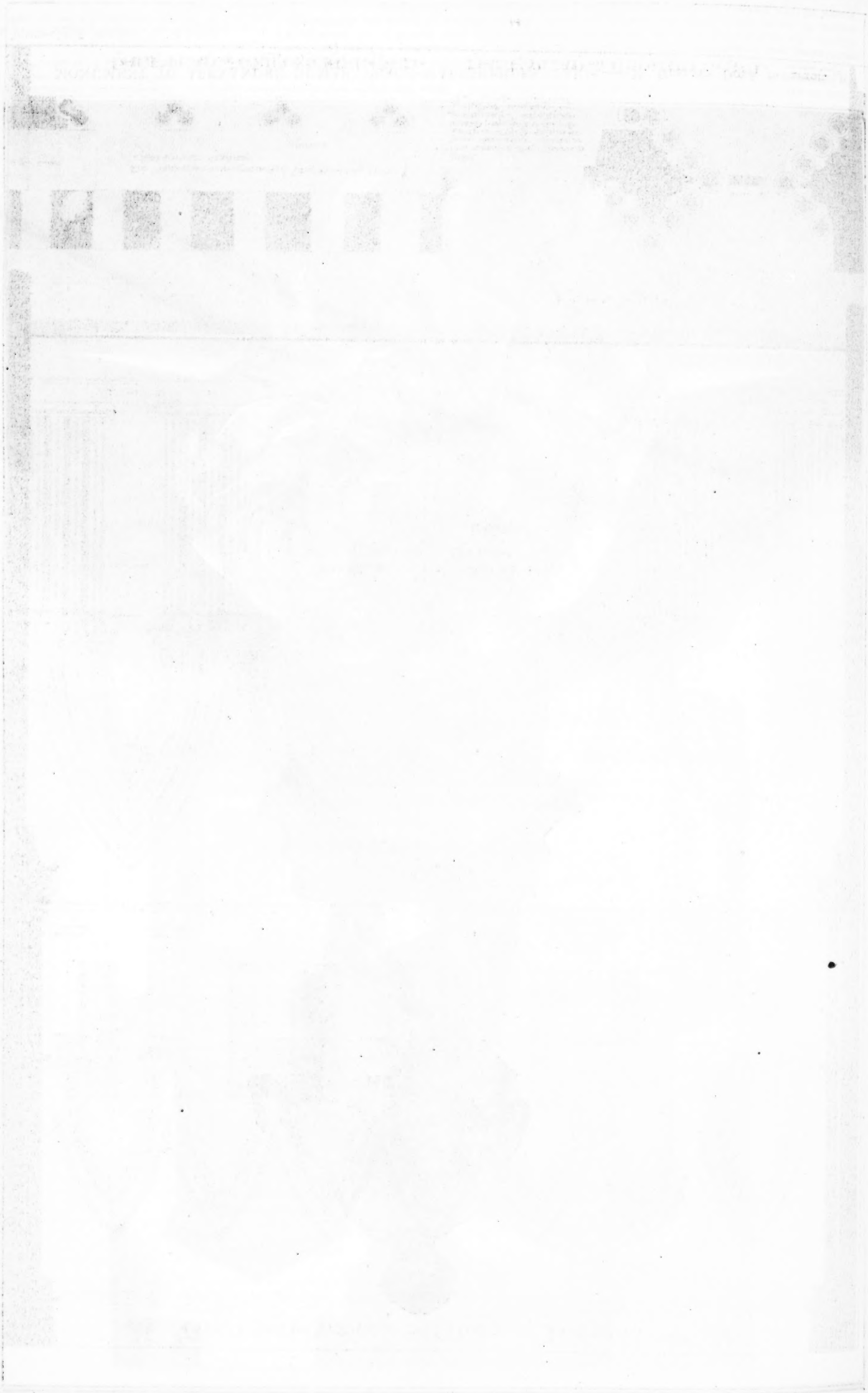
Base of Cloister Shaft

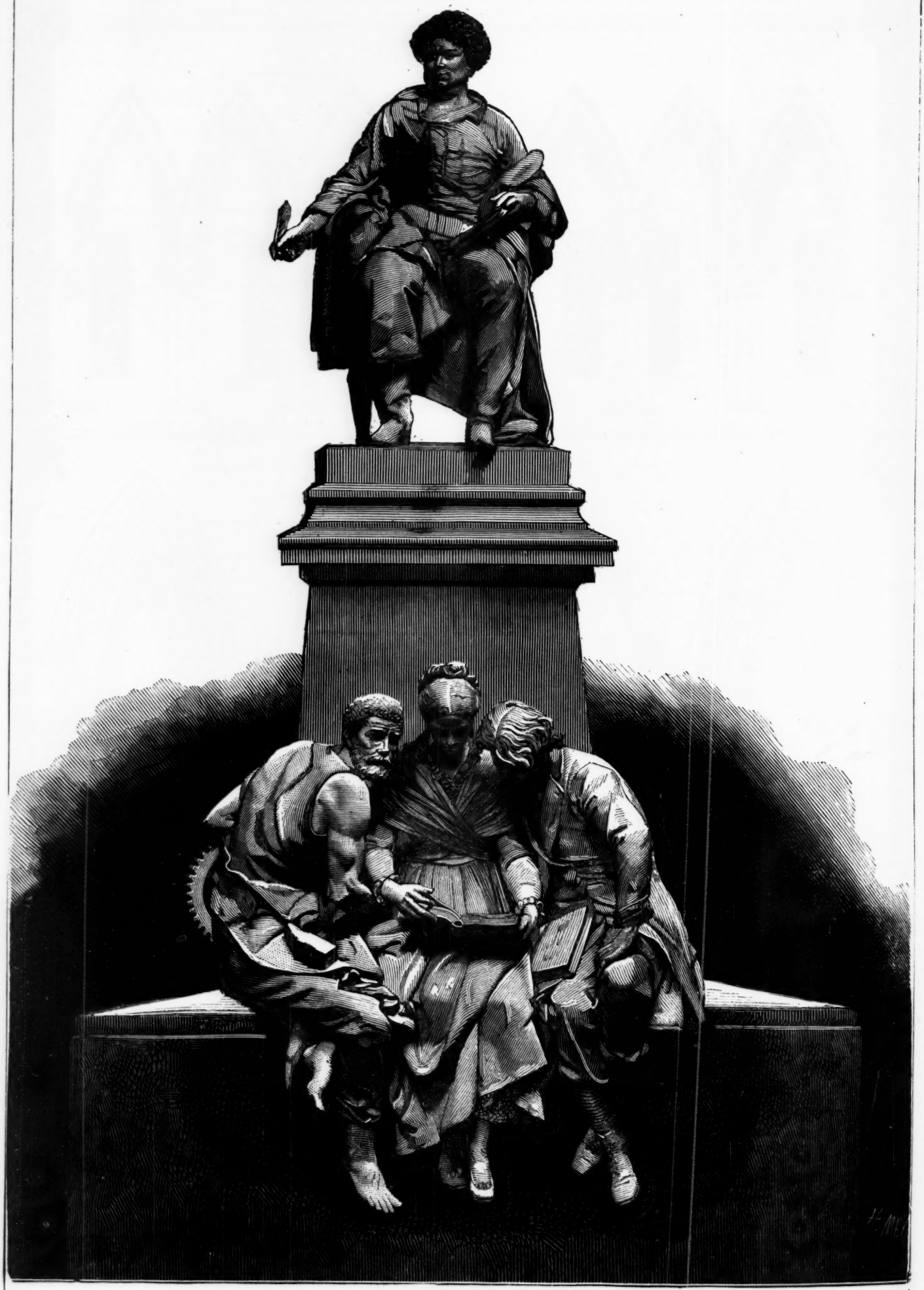
Base of Chapter House Shaft

Base of Triforium Shaft

Base of Arcade Shaft

Base of Clerestory





MONUMENT TO ALEXANDRE DUMAS, PLACE MALESHERBES, PARIS.—M. GUSTAVE DORÉ, SCULPTOR.

MURAL MONUMENTS IN BREDA CATHEDRAL.

MONUMENT TO ALEXANDRE DUMAS IN PARIS.

It was to be expected that the numerous admirers of Alexandre Dumas would erect a monument to his memory, for it is right that posterity should know how that fertile writer was appreciated by his contemporaries. It is a debt of gratitude which they owed to the author of "Trois Mousquetaires," his *chef-d'œuvre*. The monument is now being raised on the Place Malesherbes, Paris, near the residence of Alexandre Dumas Fils, the funds being provided by public subscriptions.

The author of the work is the great artist whose recent demise is deplored by the world of art,—the late Gustave Doré. Much has been written about the genius displayed by him in the various and brilliant manifestations of his talent; but it is not very generally known that during the latter years of his life he applied his gifts also to sculpture. The monument to Alexandre Dumas Père marked a new stage in the life of the late master. It has been said of him with regard to this work that, if Gustave Doré had not during his lifetime proved himself to be a great painter, he would have been stamped by it a great sculptor. It is difficult to say to what heights he might have attained if he had not been cut off so soon. The view which we give of the statue will testify to what has been said, and speaks for itself.

The monument, which is rapidly nearing completion, is to be unveiled during this month (April). In reproducing it in the *Builder*, we cannot do better than quote the closing sentences of the funeral oration pronounced by Alexandre Dumas Fils at the grave of the late Gustave Doré:—"It is not only admiration," said he, "it is not only friendship, which causes me to say a few words at the grave of the great artist. With that enthusiasm and that generosity which formed the base of his nature, Doré, while others hesitated, offered spontaneously and modestly to execute, as an evidence of his admiration for the father and his friendship for the son, the statue of the author of 'Henri III.,' 'Mademoiselle de Belle-Isle,' 'Trois Mousquetaires,' and 'Impressions de Voyage.' He would not accept remuneration; he gave to this all his time, all his talent; he may, perhaps, even have given his life. Who knows but that this monument, which occupied his time from morning till evening, sometimes also his nights, and which he has executed in six months, may not have been the cause of the disease of which he died, and to which the ardent and the passionate are liable?

For six months he has lived face to face with that other great master, whom he resembles in many points by his fertility and inventiveness, by variety and power, by his disinterestedness and kind-heartedness. This heart, which should break so suddenly after the completion of this work, has beaten filially, in unison with mine, for the consecration of the fame which to me is the most sacred. The writer and the artist were so well fitted to understand each other. Thus the whole soul of the artist has passed into and sheds its lustre over the image of the writer and the poetical figures by which it is surrounded. There they are publicly and for ever united in the memory of men; for the statues of poets are, fortunately, not those which are overthrown.

Behold here the sculptor who was arraigned, defying now indifference and injustice, compelling the multitude to look at last at his work, and thrown violently by death into the terrestrial immortality which he has given to another; we, Doré and myself, are descended after all from the same family, by the same love. Thus it is that I come here as one of his brothers to render to his dear memory the homage, which I cannot, unfortunately, cast into bronze, of my sincere admiration and of my profound yet unavailing gratitude."

MONUMENTS AT BREDA.

The fine old cathedral at Breda, in Holland, neglected but still beautiful, is rich in monuments of every description. The brass font, the choir-stalls, and the noble monument of the Nassau family, have been already illustrated in this journal, and we now add a drawing of a very remarkable example of a mural monument. This is interesting as showing the thoroughly Italian character which the Renaissance assumed in some parts of Holland.

When we say that these monuments are Italian in character, we must not be understood to suggest that they are the work of either Italian architects or workmen. The dates of their erection would preclude the possibility of their being so. The principal monument now given dates from the year 1536, and is to the memory of the Count de Bourneval.*

* This description was accidentally applied to view of a monument in Münster Cathedral, but was set right in the following number.

The Cathedral for S^t Mary of Lincoln.

Full Size Moulds.

Chapter House

Caps to Side Arches

Arches to Side Arches

Bench

Bases to Side Arches

Columns to Side Arches

Caps to Triforium

Side Arches

Arches Triforium

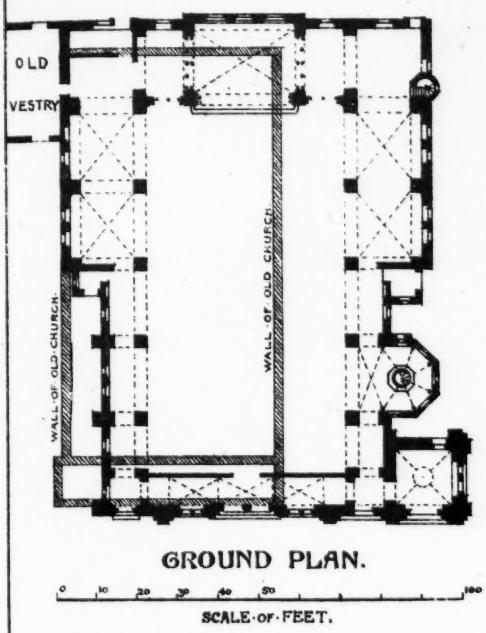
Label Triforium

Bases Triforium

Measured and Drawn Full Size on the Spot July 1681 by W^m A Pite 1882.

Whiteman & Bass, *Photo-Litho*. 236, High Holborn

Wyman & Sons, Printers, 74 Queen St



GROUND PLAN.

0 10 20 30 40 50 100

SCALE OF FEET.

C.F.Kell, Photo-Litho. Castle St Holborn.

Wyman & Sons, Printers, Gt Queen St.

ST. MATTHEW'S CHURCH, BAYSWATER.—MR. JOHN JOHNSON, ARCHITECT.

BRITISH ARCHÆOLOGICAL ASSOCIATION.

At the eighth meeting of the session it was announced that the course of the intended railway from Portsea to Bristol, designed to pass through the Avenue and the Cursus of Stonehenge, had been modified to avoid these interesting objects of antiquity.

The progress of the arrangements for holding the Congress at Dover were detailed by Mr. Geo. R. Wright, F.S.A.; and the election of Lord Granville as President was reported.

The Rev. Prebendary Scarth rendered a report of his recent visit to inspect the remarkable Gallo-Roman town now being excavated at Sansay, near Poictiers. It is of considerable extent, but no enclosing wall having been found, it would appear that it was a health resort rather than a place of strength. The remains of a large temple, measuring 250 ft. to the façade, have been already laid open to view. It is approached by two flights of steps, and has a triple colonnade, each composed of twenty-two fluted columns. The temple is in the form of a Greek cross, with an octagonal *cella*, and it appears to have been dedicated to the Gallo-Roman Apollo. This building is but one of several, baths of large extent, a hostelry, and a theatre having been already met with. The cost of the excavations is being defrayed by Père de la Croix. The report was read in the author's absence by Mr. W. de Gray Birch, F.S.A.

Mr. A. B. Wyon, F.R.G.S., made an interesting communication in support of his statement that Henry IV. used three *fleurs-de-lys* as the arms of France, and with regard to the period when the change was made by the kings of that country.

A paper was then read by Mr. E. Walford, M.A., on the curious old Flemish glass in Vane House, Hampstead, formerly the residence of Bishop Butler (1740 50) when Dean of St. Paul's. He traced the evidence that it had been placed in the window by the bishop. There is a series of subjects very similar at Oriel College, Oxford, which appear to have been brought from Hampstead. Only a portion of the mansion now remains, incorporated into the Soldiers' Daughters' Home.

The proceedings were brought to a close by a paper on "Recent Archæological Discoveries," by Mr. Loftus Brock, F.S.A. At Westminster Abbey one of the principal windows of the refectory has been met with; and at Old Fish-street-hill the foundations of the old church of St. Leonard, Eastcheap. This building was burned in the Great Fire of London, and never rebuilt. It was one of a remarkable group of churches, there having been no less than eighteen within a circle of only a quarter of a mile in diameter around it.

THE BERLIN BOURSE.

The enlargement of the Berlin Bourse, which is now in process of being carried out, will be completed next summer, and then the Berlin Bourse will be the largest building of this kind in the world. The length of the great hall will be exactly 100 mètres, or 328 ft., the breadth being 77 ft. and the height 88 ft. The rougher work is already nearly finished, only the floor of the great hall having to be vaulted. The building will be one of the most costly private edifices ever constructed in the city. The reason is that the ground water of the adjoining river Spree stands several inches above the level of the cellars so that the entire edifice had to be built on about ninety sunken caissons. The internal arrangements of the new hall will entirely correspond to those of the old one; and after the removal of the middle wall the great hall will appear as one connected whole. In the arrangement of the subordinate rooms too, the old model has been followed, which is that of the so-called New Bourse, built only twenty years ago, the architect of which was the late Oberbaurath Strack. The brown granite columns he gave are provided with white marble capitals and black socles. In the rebuilding the subordinate rooms have been well attended to. A ten-windowed public sitting saloon, a large library, a new and roomy wardrobe and refreshment rooms, as well as a variety of spacious rooms for post, telegraphy, &c., and last, not least, of accommodation for the representatives of the press. The new front, looking on the new street,—not yet named, and which it is proposed to call Börsenstrasse,—will be executed in the same style in sandstone, but will be quite independent of the old part as well as of the front looking on Burgstrasse. The architects, Messrs. Moser & Handrieser, have been commissioned to superintend the work of artistic decoration.

FOREIGN EXHIBITIONS.

In spite of the prolonged frost of the past month, the work of erecting the buildings in which the International Hygienic Exhibition is to be held in the coming summer in Berlin has been making very satisfactory progress. The principal hall is a square, each side being 312 ft. in length, and consists of twenty-five pavilions of equal magnitude constructed of light ironwork somewhat in the form of tents which afford plenty of light from the roof and sides. The chief entrance to the exhibition will be adorned with a fine large group of figures personifying "Hygeia." The interior of the cupola will be embellished with *velaria* by Professor Preller, and in the prominent spot here will be placed the bust of the Empress Augusta, who has shown great interest in the exhibition. An annexe lying along the chief axis of the building will be adorned with a panorama of the noted Austrian health-resort of Gastein, painted by Professor Hertel.

There will be three Fishery Exhibitions in Germany this year at Hamburg, Schwerin, and Ratisbon. They will open at the beginning of May.

FOREIGN COMPETITIONS.

The French Ministry of Public Works has made a communication to the President of the Paris Academy of Sciences, respecting the conditions of the great Volta prize, which is to be presented in the year 1887. The value of the prize is 50,000 francs, or 2,000*l.* sterling, and it is to be given to the person who shall by that time have made the most important discovery in electricity, applicable in an economical manner to any one of the following objects:—(1) as a source of heat; (2) light; (3) chemical action; (4) mechanical power; (5) the transmission of messages; (6) or the treatment of disease. The last date for receiving applications is June 30, 1887. The prize will be awarded in the December of the same year. Men of science of all nations are invited to compete.

The Brazilian Government has determined to erect a new Imperial Library and Government Buildings in Rio de Janeiro, and has offered two prizes for the best designs for the edifice. With regard to the conditions of the competition, we learn from the programme that it is open to architects of all nations. The building is to contain in addition to an extensive collection of books, separate departments for manuscripts, for numismatics, coins, medals, &c., for engravings, and for the archives. The last day for the reception of designs is June 30th, 1883. The programme leaves the competitors free to treat the problem very much according to their own ideas. The two prizes which are offered are of the value respectively of 1,000*l.* for the best design, and 400*l.* for the second. The judges will be the Brazilian Minister of Public Works, the Librarian, the Chief of the Archives, and three professional men, who are not to be nominated until after the designs have been sent in. The sum which it is intended to spend on the erection of the building is 100,000*l.*

A GIGANTIC TUNNEL.

An extraordinary project has been suggested in Paris. It is to connect the capital with the city of Rouen by a tunnel. The length of the work would be 117 kilomètres, or over 73 miles, while the cost is calculated at 5 millions sterling. The projectors contend that there are great strategic as well as commercial advantages connected with the scheme, but sober-minded critics regard it as the mere dream of a visionary.

Cardiff.—To meet the demands of this rapidly-advancing town, a new public hall is about to be erected. Messrs. James, Seward, & Thomas are the architects, and Mr. Addawnay, A.-M. Inst. C.E., is to construct the ironwork for the roofs, galleries, columns, &c.

LIGHTING STREET LAMPS BY ELECTRICITY.

Herr Vermehren, chief of the Central Office of Engineering at Hamburg, has described, in the *Deutsche Bauzeitung*, an appliance for the above purpose, a drawing of which will be on view at the Berlin Hygienic Exhibition. It was tried with success last year, when a model group of thirteen lights was erected at Hamburg, and will be applied to a permanent group shortly to be placed in a leading position in that city.

The apparatus for ignition consists of a battery in the foot of the candelabra, from which the electric current is led to each light by means of an isolated wire, after passing through an induction apparatus, and through a contact-apparatus, also placed in the foot of the candelabra. The lights are composed of burners with several jets of flame. Each wire terminates in a point of platinum, and a second point of platinum is placed directly at the burner. A single turning of the contact apparatus, therefore, kindles all the jets. The labour of ascending to kindle the thirteen lights is thus obviated.

LEADENHALL NEW MARKET AND ITS SURROUNDINGS.

The reconstruction of Leadenhall Market ha been accompanied by a complete change in th character of the buildings immediately around the market. Several old structures in Leadenhall-street, and also in Gracechurch-street, have been taken down and replaced by palatial new buildings, which have very materially improved the architectural appearance of the locality. One of the most prominent of these new structures is the massive block called Leadenhall Buildings, having two extensive frontages, the Leadenhall-street elevation extending from the corner of Gracechurch-street to the Whittington-avenue approach to the market, whilst the Gracechurch-street frontage, architecturally uniform with that already named, is about 50 ft. in length. There is also an angular frontage at the corner of the two thoroughfares, the architectural treatment of which is specially elaborate, and forms the chief feature in the entire block. About the time when the rebuilding of the market was under consideration, the Corporation secured a portion of the land on which the old buildings stood, at the corner of the two streets, for the purpose of widening the footway and making it circular at the angle, and this intention has been carried out in the erection of the new buildings now on the point of completion. Within the last few days the hoarding in front of the buildings has been removed, and the greatly-improved footway at the corner of the two streets is seen to advantage. The ground-floor portion of the entire block consists of handsome shops, divided by polished Aberdeen granite piers, the whole of the upper portions of the three frontages being in Portland stone. The angular frontage at the corner of Gracechurch-street is upwards of 70 ft. in height, and is surmounted by a bold and handsome pediment, richly carved. This portion of the buildings, which is carried to a greater height than the two frontages in Leadenhall and Gracechurch streets, contains four lofty stories above the ground-floor. The first-floor has elliptical windows, with rich carving in the spandrels, and there is also a profusion of carving in other parts of the elevation. The Leadenhall-street and Gracechurch-street frontages have three lofty stories above the ground-floor, the two elevations being surmounted by a balustrade. The first-floor has a range of elliptical windows, uniform with those in the angular front. The Leadenhall-street elevation is 250 ft. in length, and at the Whittington-avenue corner is sure mounted by a handsome turret. The whole of the interior of the buildings, with the exception of the shops fronting the two streets, are arranged as suites of offices, of which there are upwards of 300. The architects are Messrs. Edmeston, and the contractor Mr. Shepherd. The estimated cost of the buildings when completed is about 70,000*l.*

In continuation of these buildings, another somewhat similar block is in course of erection on the west side of Whittington-avenue, on the site formerly occupied by the old Leather Market, whilst immediately opposite to them, on the east side of the Avenue, the erection of a third block of like buildings is also in progress. The architects of the last-named build-

ings are Messrs. Edward Ellis & Sons, and Messrs. J. & J. Greenwood, of Arthur-street West, City, are the contractors, their contract being 21,000*l.*

LINCOLN'S INN CHAPEL.

THE works connected with this chapel, which have been in progress since August, 1881, are now approaching completion, and the re-opening for Divine Service is announced to take place on Sunday, the 8th inst., when the sermon will be preached by the Archbishop of York.

Athough replete with interesting associations, it formerly presented but few architectural attractions; and externally, even these were all but concealed by the adjoining buildings. The demolition of the old chambers at the west end, through which access was obtained to the chapel, preceded the important alterations which have since been made and which comprise the addition of 27 ft. to the length of the building, besides 19 more of antechapel; an entirely new roof, of higher pitch than the former, and the erection of vestries for the clergy and the choir in the anti-chapel, with double staircases beneath. Externally, the buttresses have been surmounted by pinnacles; the gables by crosses, and turrets added to the corners of the west end. The chief attraction to the connoisseur in architecture will doubtless be the stone groining of the large crypt, which certainly excels the work of the older builders; this, indeed, having never been finished in stone. The interior will strike all who were familiar with the former building as little less than a transformation. The new roof (already referred to) is panelled in moulded frames, the "principals" being supported by massive stone blocks in the form of angels bearing shields, on which are carved the arms of the prelates who have been, during the past two or three centuries, Preachers to the Honourable Society.

Some fears were naturally entertained lest the acoustical properties of the old chapel might be affected by the altered roof and changed proportions; this, however, has not been the case, save in the direction of improvement.

Surprise has often been expressed that the services of this chapel should have failed to attract a larger attendance. The causes may have been two-fold:—1. Very few were acquainted with its exact locality, hemmed in as it was by buildings of anything but an ecclesiastical character; and 2, there seems to have been a general impression that admission was only to be obtained by Benchers' orders. With respect to the latter, we understand that the new portion of the building, containing about a hundred seats, is intended to be open to the public; and as to the former, no one once in the precincts of the Inn can now fail to discover the whereabouts of the chapel.

The hours of service are 11 a.m. and 3 p.m. on Sundays.

A NEW PRISON FOR BRISTOL.

BUILDING operations in Bristol and neighbourhood at the present time are exceedingly brisk, the greatest undertaking in the city being the erection of a new Government gaol. The Home Secretary having appointed the new prison at Horfield (Bristol) a prison under the Prisons Act of 1865 and 1877 for all classes of prisoners from the city and county of Bristol, and a portion of the building,—about 160 cells, &c.,—being ready for the reception of prisoners. The process of removing them from the building on the New Cut commenced on Monday. Before the building is thoroughly completed fully two years will have to elapse. There will be another block built for female prisoners, but until that is done thirty-eight cells of the present building will be temporarily divided off for their accommodation. The boundary-wall was commenced, and about two-thirds completed, by the Bristol Corporation, but they were relieved of the burden of the undertaking by the passing of the Prisons Bill, and building operations, a long delay in the work following. This wall, now entire, is 20 ft. high, and 2 ft. 6 in. thick on the ground-level, and buttresses of greater thickness are continued to the coping-wall. The cells are 168 in number; they are arranged in four stories, down the centre running a corridor open to the roof, which is about 60 ft. high. The upper stories are approached by iron stairs, and the passages in front of each row of cells are supported on iron girders. Each cell is 14 ft. long, 7 ft. wide, and about 9 ft. high, and is provided with a substantial double window near the ceiling, so arranged that there is no iron projection to which a prisoner might tie anything. A similar precaution has been taken in the signalling apparatus, by which a prisoner might call one of the warders to his cell. Electric bells have been erected, and the pressing of a button in the cell will not only ring for the warder, but by moving an indicator outside, inform him of the number of the apartment to which he is to go. The floors are of wood, and the walls of firm Shatwood bricks, closely laid and cemented with the best machine-made mortar, which will defy all attempts to remove it. At a lower level than the ground-floor cells a large space is set apart for the boilers to feed the hot-water apparatus, and the arrangements are excellent for the discharge of the warm air into the various cells. The boiler-house is 16 ft. 6 in. wide and 33 ft. long. The cell-doors are of wood, lined on the inside with iron. Between the fourth story and the roof are placed large tanks which will have a supply of water in case of emergency. A considerable portion of the roof is of glass, and the light is ample. The cells to be erected hereafter will be built at right angles to the first structure; and when the gaol is complete it will be the finest and most complete in the country. The contractors are Messrs. E. C. Howell & Son, Bristol, whose foreman of works was Mr. G. Roe, and clerk of the works, Mr. H. Gardiner.

AGE OF TIMBER.

A FEW miles from San Francisco a tree was recently felled which, as American writers think, is one of the oldest, if not the oldest, tree in the world. It was one of the *Wellingtonia* species, and, according to the rings which were counted, its age was no less than 4,340 years. It was partly hollow, and within the bark three hundred persons could find standing-room. It was only with reluctance that this ancient giant of the forest was cut down, but its removal was imperative, as it threatened to come down of itself during the first violent gale. Another ancient tree which was recently destroyed was a cypress tree near Sparta. It is stated that this was the very tree spoken of more than two thousand years ago by the ancient Greek writer, Pausanias, and was then very old. It was accidentally destroyed by fire, a band of gipsies having lit a fire under it to cook their food, and incautiously allowed the flames to reach it.

ARCHÆOLOGICAL SOCIETIES.

Coventry.—On the 14th ult. a meeting was held in the Mayoress's Parlour, St. Mary's Hall, to consider the desirability of froming an antiquarian and naturalists' society for the city and neighbourhood. The Mayor (Mr. A. S. Tomson) occupied the chair, and there was a fair attendance. The Mayor having briefly opened the meeting, Mr. W. G. Fretton, F.S.A., stated that the objects of the Society were:—(1) To promote an interest in and extend our knowledge of local history and antiquities. (2) To encourage a desire for the preservation of our ancient buildings. (3) To guard and protect our ancient privileges. (4) To familiarise ourselves with the actual lines of our parochial and other boundaries. (5) To bring together the fragments of our local history, as exemplified in our municipal and other records, old traditions, customs, provincialisms, place names, folk lore, heraldry (in archæology), manufactures, art, statistics, local biography, and genealogy. (6) To encourage a respect for and to preserve the memorials of the dead. (7) To promote the study of local natural history, geology, botany, &c. The objects were approved of, and it was decided to form a Society, and a provisional committee was elected for the purpose of drawing up the rules.

Fenchurch-street Station.—This hitherto exceedingly inconvenient station is being considerably improved. The approaches to the platforms are being widened, while refreshment and waiting rooms are being provided. All the floors, joists, and girders of the platform are being renewed and strengthened; indeed, the work comprises the entire renovation and improvement of the station in every particular except the roof. The work has been entrusted to Messrs. Bangs & Co., builders, Bow.

PARLIAMENTARY JOTTINGS.

Labourers' Cottages in Ireland.—In the House of Commons on the 15th ult., Lord J. Manners asked the Chief Secretary to the Lord-Lieutenant of Ireland whether he could state the number of orders made by the Land Commissioners for the erection of labourers' cottages, and the number of cottages which had been erected in consequence of such orders.—Mr. Trevelyan: The Land Commissioners inform me that the number of such orders made is 339, but that they are unable to state how many cottages have been erected in consequence of such orders. By section 4 of the Labourers' Cottages and Allotments Act, a tenant who has been ordered to erect or improve a cottage is liable, on the complaint of any labourer employed on his holding, and in whose favour an order was made, to a penalty, recoverable before justices in petty sessions, of 1*l.* for every week,—after six months from the date of the order,—during which such order remains unobeyed. The enforcement of an order is, therefore, left to the person benefited thereby.

Westminster Hall.—Mr. R. Paget asked the First Commissioner of Works whether he would be good enough to place in the library of the House an architectural elevation showing the proposed treatment of that part of Westminster Hall which would be opened to view by the removal of the old Law Courts.—Mr. Shaw-Lefevre: Until the whole of the buildings of the Royal Law Courts are entirely removed, it is impossible to form any opinion as to what should be done with the west front of Westminster Hall. Whenever a decision is arrived at, I will take an early opportunity of informing the House of any works that are in contemplation.

FROM SCOTLAND.

Edinburgh.—Bailie Cranston's scheme for the utilisation of the Old Infirmary grounds (noticed in the *Builder* a short time ago), came before the Lord Provost's Committee for consideration. The scheme embraces the construction of a viaduct over the Cowgate valley from Drummond-street to High-street; the opening up of the front of the University by setting back the line of houses opposite, the extension of Infirmary-street, and the feuing of a large area for building purposes. In submitting the plans, the Bailie said that the Royal Infirmary having been removed to a healthier locality, the city had bought the old buildings and ground at a large price; and that ground was at present lying waste and unproductive. They had advertised for plans and offers for the ground; but had received none they could entertain. 1,040*l.* represented the interest, at 4 per cent., they were paying on the 26,000*l.* they gave for the ground, and that was being lost annually to the city. About another 26,000*l.* worth of ground belonging to the Improvement Trust was also lying unoccupied in the neighbourhood of the Cowgate, and he asked if they ought not at once to endeavour to utilise this ground, and save the city so serious an annual loss. The value of the ground now in their hands thus represented a capital sum of 52,000*l.*, and the question was, How was this valuable area to be made productive? He thought they should look for a return, first, by feuing the ground for building purposes, and secondly, by making new streets and buildings of such a character as would improve the sanitary condition and amenity of the neighbourhood, and, consequently, the health and business of the city. On the motion of the Lord Provost, the matter was remitted to a small committee, consisting of his Lordship, Bailies Roberts, Anderson, and Cranston, and Mr. Steel.—Under remit on the motion of Mr. M'Lachlan, the Lord Provost's Committee of the Edinburgh Town Council had under consideration a proposal to establish public wash-houses and baths in some of the poorer and more densely-populated localities of the city. The Committee were apparently well disposed towards the establishment of wash-houses, and it was resolved that an experiment should be made on a small scale with one at Lower Calton. A sub-committee was charged with making the necessary arrangements. The question of public baths was deferred for further consideration.

Portobello.—At the last meeting of the Portobello Town Council, a plan of the proposed slaughter-house and stables for the burgh to

be erected in Pipe-street was submitted. The estimated cost was stated at 1,350*l*. The Provost proposed that they should borrow 2,000*l*., which could be paid off in thirty years by the payments made by butchers and dairymen without levying any assessment upon the public. It was agreed to visit the site, and the matter was remitted to the Provost's Committee, with powers.

AN APPEAL FROM ART STUDENTS.

Sir,—It has occurred to the writer during a few months' sojourn in Paris for the purpose of studying art, that the system of enforced study abroad is not quite satisfactory, and might well be remedied, to the advantage of both students and the art they study. This may serve as apology for this appeal to the art students and artists of England, which only a strong feeling on the subject has induced him to make public.

The position of an art student in Paris may not inaptly be compared to that of an invalid seeking in foreign countries that genial climate which his native land cannot afford. The analogy differs in that the latter cannot be remedied, whilst the former could and ought to be. Taking it as an accepted fact that art students are by no means lacking in patriotism, a fact which the writer's experience certainly goes to prove, it is to most of them a galling reproach that, finding they lack higher instruction in their profession, they can by no means obtain it in England.

The Royal Academy schools are, in consequence of their limited accommodation, necessarily closed to the great majority of students, and are, of course, utterly inadequate to supply the wants of the whole of the country in respect of *advanced* education in art, and if an advanced student does get in (and the chances are largely against his admission), he can seldom afford the time consumed in making the necessary preliminary studies; in addition to which, he must consent to retrace his steps for a considerable period.

The schools of art under the South Kensington department, though professing to teach painting, are, with very few exceptions, singularly deficient in professors of eminence in this branch of art.

There are, of course, private academies, but, like the Departmental schools, they fail to induce the advanced student to remain with them, owing to the absence of well-known names at their head; and in despair he is driven to France, Belgium, or Germany, where he can find not one only, but numerous schools of art, presided over by the most eminent artists of the several countries. Indeed, it is not too much to say, in Paris every artist of the first rank has, or has had, a following of students, to whom he kindly gives instruction and advice.

Whilst dealing with the schools of the present, it may not be inapplicable to refer to schools of the future. It is, of course, well known in the artistic world that arrangements for an advanced school, presided over by an eminent Academician, to be carried on outside London, are on foot; but, admirable as the idea is, and promising as it may appear, the limited size will certainly not be sufficient to supply the want felt, or render unnecessary further efforts.

It is often said that the French temperament is more fitted than the English to receive artistic education, and so to excuse our national failing in this respect; but it is tolerably evident to the student in Paris that it is more a matter of sound education, for among the English and American students who throng the French *ateliers*, the average of success is, I should say, certainly as high, if not higher, than among their French brethren, first places in the various *concours* being frequently taken by Anglo-Saxon students. The same results, as is now notorious, have been obtained in Belgium.

If the student is easy-going, and content to let things rest, the state of things as it now is is satisfactory enough; but allowing him to be patriotic, it is not surprising that he should prefer to get his necessary training, if possible, in his native country, and study foreign art (a highly commendable thing in itself) by choice, not compulsion.

To remedy this state of things, it appears to the writer that the same system which obtains in Paris might easily be applied in London, were our eminent artists equally obliging as the French.

The system has been so often spoken of in these and other pages, that it is almost an impertinence to again explain it; but, to prevent misunderstanding I will venture to restate it. An artist in Paris makes a name, we will say, in the Salon or otherwise. Students naturally look on his work with admiration, and feel a desire to study under him. A few get together, a meeting is convened, and a deputation waits on the artist, asking him if he will undertake the direction of their studies to the extent, say, of two visits a week, the average amount. This is rarely refused. A studio is found, the students get to work, the professor makes his bi-weekly visits, and the students being satisfied with their instructor, affairs progress in a satisfactory manner; and, as a natural consequence, great advance is made in their studies.

In the absence of the above system the case simply amounts to this. We have the professors, we have the material; but, simply owing to want of coalition between the two, London is in the position of being without schools capable of affording higher instruction to an immense number of students, who are consequently driven abroad, whence they frequently return, having not only learned French technique, but imbued also with French ideas as to art, a result in the writer's opinion by no means to be desired, tending as it does to the denationalisation of our art, and to the loss of qualities peculiar to ourselves, not to be lightly thrown away.

Indignans.

BUILDING PATENT RECORD.*

APPLICATIONS FOR LETTERS PATENT.

1,532. A. C. Boothby, Kirkcaldy. Automatic flushing apparatus. March 24, 1883.

1,535. J. Booth, Bolton. Construction of window-frames, skylights. March 24, 1883.

1,567. W. Lord, Middlesbrough. Apparatus for preventing down-draught in chimneys, &c. March 28, 1883.

1,570. R. A. Hunter, Dublin. Ventilators. March 28, 1883.

1,574. A. F. Morrison, Manchester. Construction of lavatories, baths, water-closets, &c. March 28, 1883.

1,585. W. P. Thompson, Liverpool. Heating apparatus for domestic use, &c. (Com. by C. Launay, Paris.) March 29, 1883.

1,592. L. C. Besant, Glasgow. Stoves. March 29, 1883.

1,599. A. F. Andressen, London. Smoke-preventing and fuel-saving grates and stoves. March 29, 1883.

NOTICES TO PROCEED

have been given by the following applicants on the dates named:—

March 27, 1883.

599. S. S. Hellyer, London. Water-closets and slop-sinks, &c. Feb. 3, 1883.

March 30, 1883.

5,626. H. Sutcliffe, Halifax. Metal cistern and syphon used therewith. Nov. 27, 1882.

5,680. H. Doulton, London. Construction of the steps of flights of stairs. Nov. 29, 1882.

920. H. W. Davidson and J. Speir, London. Assisting the combustion of fuel in grates, &c. Feb. 20, 1883.

ABRIDGMENTS OF SPECIFICATIONS.

***Published during the Week ending March* 31, 1883.**

2,728. M. Cockburn, Falkirk. Washing-houses. June 10, 1882. Price 6d.

The partitions dividing the wash-house, are formed partly of unperforated plates and partly of wire netting, &c.

3,696. W. Ney, London. Preventing noise in window-frames. Aug. 3, 1882. Price 2d.

An indiarubber wheel is mounted in a frame on the window-frame, and intervenes between the sash and the frame. (*Pro. Pro.*)

3,729. A. J. Boult, London. Washstands. (Com. by U. O. Bond, Fairfax, U.S.A.) Aug. 5 1882. Price 2d.

The wash-basin is so suspended that it can drop down with the stand, to empty its contents, and be again raised. (*Pro. Pro.*)

3,749. A. M. Clark, London. Fabric for wall-hangings. (Com. by A. Hutchinson, Paris.) Aug. 5, 1882. Price 4d.

This consists of caoutchouc, oxygenated linseed oil and cork, cocoa-fibre, oak, sienna, and ochres, or metallic oxides, reduced to a powder, with the waste filament of wool or cotton, &c. This mixture is rolled out in a thin layer upon a backing.

3,775. J. C. Bloomfield, Blen-y-Lung, and J. McGurn, Bally-Magharan. Manufacture of bricks, tiles, or slabs. Aug. 8, 1882. Price 2d.

Two parts of sand are mixed with one part of chalk with water. The mixture is moulded, and the articles at once baked, while wet, and while hot are dipped in boiling coal-tar.

3,811. C. H. Southall, Leeds. Apparatus for cleaning and polishing windows. Aug. 10, 1882. Price 6d.

This is a spring bow-frame, fitted with swivelling rubbers.

3,844. E. A. Brydges, London. Reed fabric for ceilings. (Com. by P. Stauss and H. Ruff, Cottbus, Germany.) Aug. 12, 1882. Price 6d.

Doubled reeds are woven in a loom in such a manner that the upper and lower layers are woven on to an intermediate wire, and this fabric is used for ceilings.

3,969. J. Chaffin, Charlcombe. Glazing greenhouses, &c. Aug. 19, 1882. Price 6d.

Strips of felt are interposed between the glass and the rafter-bars, and between the overlapping edges of the panes.

4,850. W. Teague, Illogan. Apparatus for ventilating. Oct. 12, 1882. Paice 4d.

The outlet-pipe is surrounded by one or more tubes each of which has an inlet placed near the end of the pipe, near the fan.

* Compiled by Hart & Co., Patent Agents, 186, Fleet-street.

BURNLEY.

The Guardians of the Burnley Union Workhouse decided the other day as to the contractors for four blocks of cottage homes in connexion with the workhouse. They will be erected on the south side of the site, with local parpoints lined with brick. The joiners' work will be of pitch pine varnished. The contractors are as follow: — Excavators' and masons' work, Messrs. Smith & Kippase, Burnley; carpenters' and joiners' work, Mr. Robert Brown, Burnley; slaters' work, Mr. W. Stannath, Burnley; plumbers' and glaziers' work, Messrs. Collinge Brothers, Burnley; plasterers' and painters' work, Mr. Robert Smith.

On Saturday last Mrs. Fraser (wife of the Lord Bishop of Manchester) laid the foundation stone of new schools and mission church, Healey Wood, Burnley. They will accommodate 350 children (boys, girls, and infants), and seat from 500 to 600 for worship. They are faced with local parpoints, lined with bricks, with an open roof. All joiner's work is finished in pitch pine varnished, and the schools will be complete with playgrounds and conveniences. The contractors are:—Masons' work, Messrs. Parker Bros.; joiners' work, Mr. John Clegg; slaters' work, Mr. Wm. Stannorth. The other works are not yet let. The cost will be about 1,400*l*., of which over 800*l*. is already subscribed.

Mr. Thos. Bell is the architect in both cases

LEICESTER.

The foundation-stone of a new Sunday school memorial hall was laid on the 29th ult. The building, which is intended to form the headquarters of the local Sunday School Union, occupies an excellent situation in a central thoroughfare of the town. It is designed in the Tudor style, and is to be faced with red brick with stone dressings. It is of two stories, the lower floor being occupied by class and committee rooms and the upper floor by an assembly hall. The architect is Mr. Tait, and the contractors are Messrs. Holmes, Chambers, and Norman & Underwood, all of Leicester.

Mr. Henry Percy Boulnois, the City Surveyor of Exeter, has been elected Borough Surveyor of Portsmouth, by the Town Council of that place, at a salary of 600*l*. a year. He was chosen from forty-nine candidates by a majority of forty-five, against five for another candidate. Mr. Boulnois is a most efficient officer, and has done good service in Exeter, but has been queerly treated by Radical members of the Council, who recently refused an application which he made for permission to act occasionally as Consulting Surveyor. It has been represented, too, that he is overpaid in Exeter with 500*l*., yet his services have now been secured for Portsmouth at a salary of 100*l*. a year more, with promise of an early increase.

Calne Town-hall Competition. — In the limited competition for the Calne Town-hall, the Town Council adopted the report of the professional referee and unanimously accepted the design of Mr. C. Bryan Oliver, of London and Bath.

EDINBURGH ARCHITECTURAL ASSOCIATION.

THE usual fortnightly meeting of the Association was held on Wednesday evening, the president, Mr. David McGibbon, in the chair.

After the preliminary business was disposed of, Mr. John Kinross, architect, Edinburgh, read a paper entitled, "Some Notes on Italian Buildings." He prefaced his remarks by stating that the first feeling experienced after seeing several Italian towns was regret of the want of unity in design and incompleteness of structure which so many of their best churches exhibited, and also that these incongruities put the different styles in strong contrast, and enabled one to judge their merits clearly. The lecturer pointed out that the salient internal features of the Basilican Churches of Central Italy are:—the great width of nave (so desirable in order that all may have an uninterrupted view of altar or pulpit), the rich effect gained by the close spacing of columns, the broad decorated surfaces and the apse conchas with their figures of Christ or Madonna might, with advantage, be adopted in our own churches in order to make them "more attractive every day resorts and resting-places," and that the prominent external feature of the churches of Lombardy and Venetia, their great breadth of wall surface decorated with different coloured materials in courses or geometrical patterns would give some brighter and much needed in our cold streets. He then compared the Roman, Florentine, and Venetian Palaces, showing that those of Florence have a grandeur suited more for civic buildings than for residences, but that the Venetian ones have a grace and elegance desirable in residential buildings, and quoted the opinions of different authorities on the much-disputed subject of the Ducal Palace at Venice. Reference was then made to the small houses found in the Mediæval towns, more particularly in San Gemignano, near Siena, remarkable for their simplicity and fitness, and lastly, of the tenements now being built for the middle classes in Rome, and their very solid construction was pointed out, external and partition walls being much thicker than usual here, and that the fireproof nature of their floors and roofs are of a sufficiently inexpensive character as to warrant their adoption in this country.

At the conclusion, a cordial vote of thanks was accorded to Mr. Kinross.

EPSOM TOWN-HALL.

ON Tuesday, April 3rd, the Right Hon. the Earl of Egmont opened the New Assembly-Rooms and Public Hall at Epsom. After referring to the scheme and to the long-felt want of some building suitable for lectures and theatrical entertainments, his lordship then spoke in eulogistic terms of the way in which the work had been carried out, and highly complimented the architect and builder. The new buildings are situated at the junction of Church-street and High-street, and are in close proximity to the London and Brighton Railway station, which will give every facility for artistes and visitors residing within a reasonable distance. The accommodation on ground-floor consists of a club-room and reading-room which are situated on either side of central hall; each room is 30 ft. long, 16 ft. wide, and 14 ft. 6 in. high, and is lighted by two large windows and heated by specially-designed fire-places and mantels with plate-glass in over-mantel. Fresh air is admitted by shafts in window-sills and by ventilators at ceiling line. The small lecture-hall is approached from the centre hall and also from the principal hall. The room is 40 ft. long, 38 ft. wide, and 14 ft. 6 in. high, and is lighted by five large 3-light windows, and is heated by steam, and fresh warm air is admitted by vertical shafts in window-sills and the vitiated extracted at ceiling line. In connexion with the room there is a dressing-room with lavatory accommodation. The room is intended to be used for suppers and entertainments of a limited kind. The principal entrance to public hall is situated on the left of the building, and consists of large hall 26 ft. long, 16 ft. wide, and 24 ft. high, and is lighted by a large 3-light window. The hall is paved with concrete to a specially-designed pattern. The stairs are of concrete 6 ft. wide with iron ballusters and oak hand-rail. The gentlemen's cloak-room and lavatory are placed at the back of entrance hall. The public hall is 68 ft. long, 40 ft. wide, and 26 ft. high, with deal panelled waggon roof with moulded principles and purlins with carved cornice; the gallery is serpentine on plan, with enriched concrete front with moulded swags and heads. The stage is so constructed that when not required for performances it can be taken down and will form twelve tables, each 12 ft. 6 in. long, and 3 ft. 4 in. wide. At the back of the stage are three dressing-rooms, each having lavatory and water-closet accommodation, with a staircase and separate entrance from the road. Accommodation is also provided on the landing, for the storage of scenery, &c. The whole of the joinery is stained and varnished, also the boarding to roof. A separate staircase and entrance hall is provided, with urinal accommodation, for the back seats and gallery. The public hall is lighted by six large 2-light windows at the sides and by a large window at the end, and is heated by steam, and fresh warmed air is admitted by vertical shafts in the window-sills, and the vitiated air is extracted by cowls in the roof. The artificial light is provided by two sunburners. The kitchens and heating-chamber are situated in the basement, and are approached from the private road. In the kitchen there is a kitchener and three large steamers, and a lift which runs up to small lecture hall or supper-room (this can be continued to public hall if required); the heating-chamber contains a 10-horse power boiler which supplies all the steam required for heating the building, cooking and pumping the water from the well, which is 15 ft. deep. The buildings are designed in the Classic style, the front being faced with bracknell red bricks and Lascelles concrete mouldings; the enrichment in centre pediment with the cornice, also the enriched pediments over entrance-doors, are superior castings in concrete. The whole of the walls are of cement concrete, faced inside and out with Lascelles potters' slabs, the outside being of a dull red colour, and the inside having chocolate-coloured slabs up to dado capping, and above that they are a buff colour. Messrs. Homan & Rogers, of 17, Gracechurch-street, provided the iron girders and roof principles. The Thames Bank Iron Company fixed the heating apparatus, pump, &c. Messrs. Sandland & Co., of Mansell-street, Aldgate, were the gas engineers. The contract for the works has been carried out most satisfactorily by Messrs. W. H. Lascelles & Co., of 121, Bunhill-row, E.C., from the designs and under the superintendence of Mr. Hatchard Smith, architect, 41, Moorgate Station-buildings.

AMBER.

SOME months ago a builder in Berlin, in excavating for the foundations of a new house, came upon a considerable number of pieces of native amber, and as this material ranges in value from eightpence up to four pounds sterling per pound avoirdupois, the discovery naturally stopped building operations for a time. The hoped-for amber mine, however, was not found, only occasional pieces being stumbled upon, which were too limited in quantity to make it worth while to prosecute the search. The commonest impure kinds of amber are used to make varnish; and the demand for the more valuable kinds which are employed for necklaces, pipe-mouthpieces, and other purposes, is such as to make an amber mine a source of great wealth. The largest European amber deposits are found on the Baltic shores of North-eastern Prussia. There about eighty tons a year are at present dug up, and the supply appears practically inexhaustible. Since the beginning of the century it is calculated that over 1,600 tons have been produced there, and if the production, as some contend, has been going on for three thousand years, the total quantity produced in that period cannot, it is calculated, have been less than sixty thousand tons. The amber is found in isolated pieces, varying from the smallest beads up to blocks of many pounds in weight. The largest piece ever discovered weighs thirteen pounds and a half, and is now in the Royal Mineral Cabinet in Berlin. The material lies in a layer of blue earth, which extends from the surface to a depth of from 80 ft. to 100 ft. The area of the amber fields of Prussia is nearly fifty miles long by nearly ten in breadth, and here it is present in large quantities. It is reckoned that every 12 square feet of surface will produce a pound. In this part of Prussia alone it is estimated that there lie hidden there at this moment not less than half a million tons. But the Baltic shores of Prussia are not the only region where amber in found. No doubt it lies in large quantities beneath the Baltic Sea, between the Prussias coast and the islands of Bornholm, Oesel, and Gothland, in which islands it is also found, It is likewise met with in Northern Siberia, Kamtschatka, and on the Behring Straits; further on the White Sea shores, in Greenland, and in the south of Sicily. Amber was mentioned by Homer, who speaks of it as being esteemed of equal value with gold. It is the fossil resin produced by upwards of six kinds of coniferous trees in pre-historic times. Two of these trees, of which immense forests covered the regions now producing amber, have been proved to be nearly related to the existing Weymouth pine and the modern fir-tree. While the wood of the trees rotted away, the resin which exuded from them has been preserved in the form of the fossil amber. The resin oozed out of the stem of the tree as well as out of the roots, and was deposited eventually in immense quantities in the soil. In some of the pieces of the amber bits of the wood and bark of the trees are found imbedded, and through this lucky accident have been preserved from decay. On examining this wood with the microscope, it is at once apparent that the trees were, as intimated above, closely related to our modern coniferæ, but were not absolutely identical with any of the existing species. Ages ago the whole region now covered by the eastern part of the Baltic Sea was covered with these amber-producing trees. The industry of amber-digging is one of very great importance for Prussia, and it is calculated that the amber district of that country still contains a quantity which, at an average value of five shillings per pound, is worth no less than 250,000,000*l.* sterling.

SMOKE ABATEMENT COMMITTEE.

SIR,—I am sure that with your usual impartiality you will allow me to correct a few slight mistakes into which Mr. N. R. E. Coles and Mr. D. K. Clark have fallen. Small flues are not more fit for slow-combustion grates than for others. Quite the contrary. Chimneys are still generally constructed 14 in. by 9 in. This allows of the gentle ascent of a column of air sufficient in volume to carry off the foul products and of any kind of grate to be used without frequent chimney-sweeping. Boys used to sweep chimneys, not men, unless they were remarkably small. Chimneys or flues 9in. by 9 in. or 9 in. in diameter, are very rarely used. When they are used, the owner or occupier has to use the most contracted forms of grate.

It is the fireplaces below the chimneys that are contracted, not the chimneys themselves. Chimneys at top are never throttled by experienced men, and they never use the gim-crack contrivances mentioned by Mr. Clark. The aperture at top should always be equal to the aperture below when the register is thrown open. A suitable size is 10 in. for ordinary fireplaces, and 11 in. or 12 in. for large fireplaces and kitchens. Chimney-pots are sometimes too small, and the occupants of the houses have hence to put up with smoky chimneys and close or stuffy rooms in unblissful ignorance of the cause. Many years ago 6-in. drain-pipes were used for flues in a large public building, but they had all to be removed and proper chimneys constructed.

Mr. Clark was suspicious of something being wrong when my grate was tested. It had acted admirably in the arcades with an 11-in. temporary chimney. In the test, however, he saw that the test was unsatisfactory, and even muttered to me a suspicion of the flues being too small, but I did not learn the size.

However, enough has been said; but, strange to say, here is another little discovery. It appears by another report, published also in the *Sanitary Record*, that one of the grates promoted to honour emitted air for two hours at a temperature of from 380° to 440°, and that "the velocity of discharge of the heated air averaged 120 ft. per minute during the trial, making a volume of 13,000 cubic ft. of heated air delivered per hour." Such temperature is vastly in excess of what is ever used in a Turkish bath, and fit only for a baker's oven!

FREDERICK EDWARDS.

PS.—You saw by the extracts I sent you that I was fully justified in using the names of the gentlemen I mentioned.

ACTION BY A BUILDER AGAINST A SOLICITOR.

CURTIS *v.* REEP.

THIS was an action in the Westminster County Court, before Mr. Judge Bayley and a jury, brought by the plaintiff, a timber merchant and builder, of Penge, to recover from the defendant, a solicitor in the City, the sum of 39*l.* 5s. under unusual circumstances.

Mr. Tirrell appeared as counsel for the plaintiff; and Mr. Kemp, Q.C., with whom was Mr. Tindal Atkinson, for the defence.

Mr. Tirrell, in opening the case, said his client's claim was for inclosing some portion of The Burdhurst Estate at Croydon, as he would be able to prove, by the defendant's order, who had on prior occasions employed the plaintiff, and had paid him moneys on account. His client had on several occasions made unsuccessful applications for his money, which necessitated the present proceedings, which were originally instituted in the High Court of Justice, and were sent down as an issue to be tried in this Court.

The plaintiff being called, said that the defendant ordered him to do the work in question, but that the precise dimensions and instructions were given him by a Mr. Hammer, the defendant's agent at Croydon. The defendant was in the habit of making advances to speculative builders on mortgages of their leases. He (the plaintiff) did not know who were the builders on the inclosures he had erected, but he was aware the defendant was the solicitor to the estate. When he called for his account he was continually put off, and was told that he could not have his money till the accounts of a Mr. Keeber, a builder on the estate, had been gone into. He had nothing to do with this, and as he had received 5*l.* 15s. on account, he considered the defendant liable, who ultimately having denied his liability, the present proceedings were taken.

John Carter, called, said that he knew the plaintiff had received his instructions from the defendant's agent, an was aware that neither Mr. Keeber nor any one else had given the plaintiff instructions to carry out the work.

William Latter, in the employment of the plaintiff, said in his evidence he had called on the defendant for money, and was paid money on account, and was promised the balance now sued for as soon as Keeber's affairs were settled, as the defendant said that the debt was owing by Keeber.

This was the case for the plaintiff.

The defendant being called, said he was solicitor to the estate in question. He knew the names of Brock, Norman, Lloyd, and others, who had purchased plots on the estate, and had built upon them. Hammer was the original builder, who had sublet to Keeber. Hammer was never his agent, neither had he agreed to pay for anything he ordered to be done. In 1882 there was some small balance due to the plaintiff, amounting to 5*l.* odd, which he paid, but that was irrespective of the present claim. In cross-examination witness admitted advancing money to Hammer and others, and that it was to his advantage to have the works completed as soon as possible.

Mr. Hammer, called, said he was never the defendant's agent, and never gave the order in question.

Mr. W. J. Keeber, a builder, said that the fencing was done by his order; he merely knew the defendant by calling upon him in company with other builders for advances.

After Mr. Tirrell had addressed the jury in a most exhaustive speech,

The learned Judge, in summing up, told the jury that if they, after the evidence, believed that Hammer was the agent of the defendant, they must rule in favour of the plaintiff; but if, on the other hand, they believed the statements of Hammer and Keeber, they must rule in favour of the defendant.

The jury, without retiring, gave an immediate verdict in favour of the plaintiff for the full amount claimed. The question of costs was reserved for the Court above.

Notice of appeal was at once given, and a copy of the learned Judge's notes granted.

Glasgow.—Last week, at a meeting of the landward heritors of the Barony parish, Mr. Whyte, assistant Master of Works for the Corporation of Glasgow, reported upon the dilapidations of the Barony parish church, estimating the cost of restoration at 450*l.* Decay, however, had entered the building, and it might be found, notwithstanding the minuteness of the inspection, that some defects still existed. Dr. Marshall Lang said his kirk-session were unanimously of opinion that no repairs that might be executed just now would put the church in a satisfactory position. The church in many respects, unless there was an entire reconstruction, would remain an unsatisfactory building. They, therefore, felt that the erection of a new church should be seriously contemplated. It was ultimately agreed that the meeting should get the church put into a safe and proper condition.

STEVEN *v.* RICHARDSON.

THE plaintiffs in this action were the well-known firm of ironfounders, Steven, Bros., & Co., of London and Glasgow, who sought to recover from the defendant, J. O. Richardson, builder, of Peckham, the price of a quantity of iron staircase balusters, made to defendant's order, to be paid for cash on delivery. The defendant refused to take delivery on the plea that they were not made according to order; but from the evidence given it was clear that the defendant had made a mistake in ordering a straight instead of a curved baluster, as a straight baluster could not have been used for the stair he intended it for.

The defendant's counsel also tried to overthrow the plaintiffs on a point of law, that the whole of the goods had not been tendered; but the judge ruled that, as the defendant had refused the part tendered, the plaintiffs were relieved from any further tender.

This was a second trial; the jury in both cases having found a verdict for the plaintiff.

"ARCHITECTURAL IMPROVEMENTS IN FORE STREET."

SIR,—I notice in your issue of the 24th ult. a description of the buildings in course of erection on the south side of Fore-street, and find a slight error has crept in with reference to the architects engaged upon the work.

Kindly allow me to explain that the buildings of five stories now being erected by Messrs. Brass & Lawrence, having a frontage of 123 ft., are from my designs, and are being carried out under my supervision. GEORGE VICKERY, A.R.I.B.A.

DISSENTING CHURCH-BUILDING NEWS.

Southport. — The trustees of the Wesleyan school-chapel, Southbank-road, Southport, have just accepted tenders for additional buildings, comprising four large class-rooms, a library, tea-room, and infants' school. The works will be carried out from the designs and under the superintendence of Messrs. Maxwell, Tuke, & Hurst, architects, Southport.

Blowick, Southport.—Tenders have just been accepted for the erection of a lecture-hall and infant-school for the trustees of the Wesleyan chapel, Blowick, Southport. The plans have been prepared by Messrs. Maxwell, Tuke, & Hurst, architects, Southport, and the buildings will be erected under their superintendence.

Bury.—A school-chapel is about to be built in Parkhills-road, Bury, for the Methodist Free Church. The buildings are intended to be used for the present as a chapel, day-school, and Sunday-school. Sufficient land is left in the front of the site for a large chapel, which is intended to be built in the near future. Accommodation will be provided for 300 day-scholars, including infants, allowing 8 super. feet per child. The architects are Messrs. Maxwell, Tuke, & Hurst, of Southport.

Books.

Kelly's Directory of the Building Trades. Comprising every trade and profession in any way connected with Architecture and Building throughout England and Wales, and the principal towns in Ireland. London: Kelly & Co., Great Queen-street, Lincoln's Inn-fields. 1883.

Kelly's Directory of the Engineers, and Iron and Metal Trades, and Colliery Proprietors. Comprising every trade and profession in any way connected with the above trades throughout England, Scotland, and Wales, and the principal towns in Ireland. London: Same publishers.

EACH of these books has reached a fourth edition, and is likely to be carried on for many years to come. The care and pains with which they have been produced, and their value as books of reference, are beyond praise. Their arrangement is such, too, as to make it easy, notwithstanding the size of the books, to find at once anything desired. Some interesting facts given in the preface of the "Building Trades Directory" show to how large a body the information given appeals to. From the last-published "Occupations of the People" it is found that there are in London alone:—

Architects	1,928
Surveyors	971
Builders	5,657
Carpenters and joiners	31,699
Bricklayers	19,983
Marble masons	853
Mason-paviors	6,029
Plumbers, painters, and glaziers	27,719
Total	92,839

Besides plasterers, paperhangers, and others, to the number of about 8,000 more.

The returns of last census are not yet published, but there is no doubt that they will show a very considerable increase upon these numbers. These figures show not only the great importance of the building trades, but are instructive as indicating the enormous losses that must accrue from a "strike" or "lock-out" in any of the principal branches of the trade. The editor speaks of the prosperous condition of the building trade at the present time being due, to a considerable extent, to the absence of those unhappy strikes which occurred during a former period. Whether, however, the trade is in such a prosperous condition we are not quite sure.

In the volume in question the employers of labour only are, as a rule, dealt with, and it it will doubtless be interesting to note the vast numbers of persons employed by them, directly and indirectly, throughout the country. Thus, it is found that there are 5,672 architects, 3,097 surveyors, and 23,129 builders, while these latter may be said to find employment for the following subsidiary branches of the building trades, viz.:—

Carpenters and joiners	205,624
Bricklayers	99,945
Marble masons	2,931
Mason-paviors	95,199
Slater tilers	6,079
Plasterers	24,575
Paperhangers	3,442
Plumbers, painters, and glaziers	103,382
Brickmakers and dealers	36,249

In addition to which there are 516,605 general labourers not otherwise particularised, but of whom a very considerable number were certainly employed in connexion with these trades.

Among the fine arts connected with these trades may also be mentioned 799 sculptors and 2,480 wood-carvers. To manufacturers and merchants, if to no others, desiring to get into connexion with persons in any way connected with architecture, engineering, the metal and the building trades, throughout the kingdom, these books are absolutely necessary.

Technologisches Wörterbuch in englischer und deutscher Sprache. By Prof. G. EGER. English-German. Braunschweig: F. Vieweg und Sohn. 1882.

THE great progress made by scientific literature during the last half-century has been accompanied by a corresponding active intercourse between the men of science of all nations. Hence, works having for their aim to facilitate such intercommunication,—that is to say, scientific and technical dictionaries in two or more languages,—have been in great request, and, unfortunately, many works have found ready buyers which were hardly worth the paper on which they were printed. We are glad to be able to state that Prof. Eger's book is not of that description. On the contrary, the work has been compiled by a scholar, who in his turn has been assisted by a galaxy of well-known men in their several walks of science. It would not be candid to say that the work is entirely free from faults, but those faults consist rather in omissions. We have missed many words which, we thought, should find a place in such a dictionary. But, on the other hand, it may be said, in mitigation, that a work of this nature takes necessarily a long time for preparation, and that even while it is passing through the press, new expressions are constantly being added to the scientific vocabulary. With all these shortcomings, the volume is not only a good book, but it is by far the best which we have seen during a long experience as technical translators. The part before us especially will be of very great assistance to English students; but we hope that the appearance of the second part (German-English) will not be long delayed. To make proper use of such a dictionary, it is absolutely necessary that both parts should be in the hands of those who use it.

VARIORUM.

THE warming of buildings by means of steam becoming more and more the fashion, especially in the United States, such a book as "Steam Heating for Buildings" (published by John Wiley & Sons, New York; but to be had of Messrs. Spon, of Charing-cross, London), will prove very useful, there being a dearth of practical information on the subject. The author, Mr. W. J. Baldwin, gives a description of steam heating apparatus for warming and ventilating private houses and large buildings, with remarks on

steam, water, and air, in their relation to heating; useful miscellaneous tables being incorporated. The illustrations interspersed in the text might be a shade better.——"The Electric Lighting Act, 1882," by Messrs. W. C. and A. Glen barristers-at-law (Knight & Co., publishers), is one of the several legal manuals which have lately made their appearance in connexion with electric lighting. Legal literature on this subject is as yet but scanty, and the work which the joint editors have performed has been to add notes and references, as well as a few decisions, to the various sections of the several Acts which are either partly incorporated with or are referred to in the Act of 1882. The code of rules recommended by the Council of the Society of Telegraph Engineers and of Electricians and the rules of the Board of Trade, annotated, are also given. The book appeals to all introducers of electric lighting.—We have received two publications emanating from advertisement agents. One is "May's British and Irish Press Guide," a book so well known that it needs no further advertising, beyond noting the fact that it has now reached its tenth year of issue, and that it is published by Messrs. F. L. May & Co., of 159, Piccadilly, London.——The other book relating to advertising is Mr. H. Snell's (of 167, Fleet-street, London) "Philosophy of Advertising, and Newspaper Register." With it is published a reference map for advertisers, which by itself makes it worth while for the latter to purchase the book, now issued for the second time.

Miscellanea.

The late Chancellor of the Exchequer and his Carpenter.—The *Exeter Gazette* for March 30th records the following:—Last Tuesday the mortal remains of Sir Stafford Northcote's head carpenter, John Webber, were laid in the churchyard at Upton Pyne. The deceased, who was seventy-two years of age, expired on Tuesday last, and so great was the esteem felt for the deceased, that Sir Stafford Northcote and a large number of the inhabitants of the village were present at the funeral. Webber was born in the village, and during the whole of his lifetime has not left his native place for a longer period than six months. He has been carpenter for Sir Stafford for many years, as well as clerk in the parish church. The funeral *cortège* left the deceased's cottage, and at the lych-gate was met by Sir Stafford Northcote, carrying a beautiful wreath, which he immediately placed upon the coffin. The corpse, before burial, was taken into the church, where Mrs. J. S. Northcote, Miss Ley, Mrs. Stoneman, Mrs. Bamsey, Mr. Bamsey, and Mr. Stoneman sang the hymn, "Brief life is here our portion," and at the grave the hymn, "Thy will be done," was also sung. The officiating clergyman was the Rev. J. S. Northcote. At the conclusion of the funeral, a knell was rung on the parish church bells.

Canal Casualties.—About a month since traffic was resumed on the Shropshire Union Canal from Ellesmere Port on the Mersey, through Chester, to the Midlands, after being stopped for nearly a month at Bunbury, Cheshire, through the bursting of a large lock. This lock is said to be built on a large bed of quicksand, which is continually shifting, and the forces at work beneath burst asunder the iron rivets supporting the canal bank and locks. The traffic was stopped, and gangs of navvies were constantly employed day and night to repair the mischief, and large iron plates absolutely encasing the lock were put down, supported by immense iron uprights, to support them against the drifting sand, but the forces of nature have again been too enormous for resistance. The plates and rivets have been, it is supposed, forced out of position, as the canal again shows unmistakable signs of immediate collapse. The London and North-Western Railway Company, which works the canal, have accordingly drawn off the water and entirely suspended traffic. In the meantime the traffic will be carried over their lines of railway. An investigation will be made by the engineers of the company into the damage, and further steps will have to be taken to consolidate and strengthen the canal embankment.

Institute of Painters in Water Colours. The following artists have been elected members of the Institute of Painters in Water Colours:—Mr. R. Spencer Stanhope, Mr. E. A. Abbey, and Mr. Walter Langley.

Private Bills in Parliament.—Of the 276 Private Bills which were deposited at the Private Bill Office on or before Dec. 21, 1882, no fewer than 41 have, up to the present time, been either withdrawn, not proceeded with, or thrown out on second reading, or standing orders. Of this number the following 21 Bills relate to London and its suburbs:—East Essex Railway; East London Tramways; East of London, Crystal Palace, and South-Eastern Junction Railway; Great Eastern Railway (High Beech Extension); Greenwich and Northern Lines Connecting Railway; Haverstock-hill and Hampstead Tramways; Kingston and Surbiton Tramways; London Southern Tramways (Extensions); London Street Tramways (Extensions); London Tramways (Extensions); Mid-Essex Junction Railway; Mid-London Market; Mid-Metropolitan Railway; North Metropolitan Tramways; North-Western Metropolitan Tramways; North-West Metropolitan Tramways (No. 1); North-West Metropolitan Tramways (No. 2); Poplar and Canning Town Railway); Southwark and Deptford Tramways; Tower (Duplex) Bridge); and the West Metropolitan Tramways Extensions.

Cowes.—Extensive building operations are about to be commenced at Cowes, it being the intention of Mr. Ward (says the *World*), the lord of the manor, to let out Northwood Park for the erection of villas. Indeed, several sites near Egypt Hill have already been taken, one by General Baring and another by a lady who intends to build a large house in the Queen Anne style. I trust that great care will be taken to preserve a certain uniformity of design in the Northwood villas, or at least that Cowes will not be made hideous as Shanklin and Ventnor have been. Both of these places have been ruinously over-built, and their original beauty has been destroyed by frightful ramshackle villas. The members of the Squadron are setting their house in order, and a new spacious private landing-stage, which has long been required, is about to be built, which, with the approaches and other improvements, will involve an outlay of 4,000*l*."

National Association of Brassworkers. The eleventh annual delegate meeting of the National Society of Amalgamated Brassworkers was held on the 14th ult. at Zion School-room, Newhall-street, Birmingham. Mr. S. Maddocks presided, and there were present delegates from Wolverhampton, Sheffield, Walsall, Rotherham, London, Manchester, Luton, Bradford, Halifax, &c. The forty-fourth quarterly balance-sheets of the association were submitted, and showed that during the past quarter there had been a saving of 300*l*. The report was unanimously adopted as satisfactory. The meeting then proceeded to elect a general secretary to fill the vacancy created by the appointment of Mr. W. J. Davis as a factory inspector. There were two candidates, viz.,—Mr. Edward Lilly, vice-president; and Mr. Walter J. Glover. After considerable discussion Mr. Edward Lilly was elected by 97 to 25.

Subsidence of Houses at Wigan.—An extraordinary occurrence took place near Ince Station, Wigan, on the night of the 15th inst., resulting in the death of one man and in several others having narrow escapes. Without any warning the front of two cottages in Viaduct-street gave way, and disappeared with a loud crash down an old coal-pit shaft which suddenly disclosed itself. It appears that many years ago coal was worked from this pit, but the shaft was filled and cottages erected on the surface. The material must have been forced into the old workings, and arching over the top of the shaft given way. One house was tenanted by an old man, named Plunkett, who escaped, but his son-in-law, John Banks, was buried in the falling *débris*, and his body has not yet been recovered.

Tiverton Waterworks.—The water supply of this borough, although fairly good in dry weather, becomes very objectionable during even slight rainfall. The Corporation, therefore, are naturally desirous that an improvement be effected, for which purpose they have instructed Mr. Edward Pritchard, C.E., of Westminster and Birmingham, to examine and report as to the best means to be adopted.

At Sheerness on Saturday last an inquiry was held before Mr. J. T. Harrison, C.E., one of the inspectors of the Local Government Board, for sanction to borrow the sum of 1,269*l*. for sea defences and street paving, to be carried out under the directions of the Board's surveyor, Mr. H. W. Stringfellow.

Royal Victoria Coffee Hall.—The military concert given at the above hall by Lieut.-Col. Keyser and the officers of the 7th Royal Fusiliers on Thursday, March 29th, was a great success. Lieut.-Col. Keyser took the chair, and by his conviviality kept the whole concert going in an exceptionally brilliant manner. Where all did their parts so well it would be invidious to single out individuals for special praise, although we cannot pass over Lieut. W. H. Heron-Maxwell and Lieut. H. G. Dunning, who were real *comiques*, and could only be surpassed by Lieut.-Col. Keyser's own singing and acting. The programme for the month of April includes a ballad concert on April 5th, at which Mdlle. Mathilda Enequist will appear, a grand miscellaneous concert on April 18th, in aid of the funds of the Royal College of Music, which will be attended by H.R.H. Princess Christian.

A New Railway.—The new line of railway between Lancaster and Glasson Dook is now completed, and only awaits Government inspection prior to being opened for passenger traffic. By this line, which is a branch of the London and North-Western Railway, and about four miles in length, more direct communication by sea with Liverpool, Whitehaven, and other ports is established. In connexion with the new railway the Lancaster port commissioners have extended the stone pier at Glasson at a cost of over 12,000*l*., and provided other facilities for loading and discharging vessels. The new line skirts the river Lune nearly the whole distance to Glasson.

Haworth, Yorkshire.—One of the three-light windows of this lately-erected church has just been filled with painted glass, by way of memorial of some late members of the family of Mr. W. H. Townend, of Heaton Hall. The subjects illustrated are the Nativity, the Marys at the Sepulchre, and (centrally) the Ascension; the tracery lights being mainly filled with figures of angels. The treatment, in accord with the architecture, is fifteenth century. The window is from the studio of Messrs. Powell Bros., of Leeds.

Liverpool Engineering Society.—The sixth meeting of the Society was held on Wednesday, the 28th of March, at the Royal Institution, Colquitt-street, Mr. W. E. Mills in the chair, when a paper, entitled "Notes on American Locomotives," was read by Mr. W. H. Fleming. The paper was illustrated by a number of photographs that Mr. Fleming had collected during his connexion with the Brooks Locomotive Works, Dunkirk, New York State.

The Wilkinson Tramway Engine.—A committee of advice, appointed to make recommendations for the more *profitable* and *economical* working of the North Staffordshire Tramway Company has recommended that the *Wilkinson* type of engine should be employed on the lines, instead of the ones now in use, by which change they consider the *cost of working* would be *much reduced*. The line runs through the Potteries. This report has been adopted by the shareholders, and the directors have been requested to carry it out.

Parcels Post.—We understand that Mr. John Philipson's designs for parcels-post vans, carts, and hand-barrows have, after several interviews with the authorities at the General Post-Office, been approved by the Postmaster-General; and Messrs. Atkinson & Philipson, coach manufacturers, Newcastle-upon-Tyne, are making a set of vehicles suitable for the parcels-post service.

St. Paul's Church, Sale (a suburb of Manchester), the foundation-stone of which was laid on July 15th last, by Mrs. W. Cunliffe Brooks, is in a very forward state of completion, and will shortly be ready for consecration. The structure is expected to cost about 5,000*l*., exclusive of tower and spire. The architect is Mr. H. R. Price, of Manchester.

Mr. W. J. Wainwright, of Birmingham has been elected an Associate of the Royal Society of Painters in Water-Colours. He is an occasional contributor to the Birmingham Society of Artists, and a member of and a contributor to the Birmingham Art Circle.

Engines.—Such of our readers as may have occasion to purchase engines should look to a sale of sixty high-class and second-hand engines, &c., advertised in our present number by Mr. A. T. Crow, for Messrs. Barrows & Stewart.

Ramsgate.—The architect under whose direction the tidal baths mentioned last week are to be constructed is Mr. A. B. Pite, and not Mr. A. R. Pite, as stated.

TENDERS.

For erecting nineteen houses and stables at Stoke Newington, for the Incorporated Society of Licensed Victuallers. Mr. H. J. Newton, architect:—

Oldrey	£12,200	0	0 !
Patman & Fotheringham	11,648	0	0
Gibbs & Flew	11,540	0	0
Maton	11,260	0	0
Nightengale	11,259	0	0
Chamberlain	10,935	0	0
Langmead & Way	10,715	0	0
Godden	10,653	0	0
Cook	10,584	0	0
Lamble	10,492	0	0
Bryant & Stapleton	9,700	0	0
Shurmur	9,693	0	0
Pickersgill	9,032	0	0
Walker	8,460	0	0
Royal	8,332	0	0
Wood	8,319	0	0 !

For Turkish Baths, Northumberland-avenue, Charing-cross. Mr. R. Walker, architect. Quantities supplied by Mr. C. Maylard:—

Greenwood	£19,766	0	0
Brass	19,340	0	0
Trollope	18,901	0	0
Ashby & Horner	18,579	0	0
Dove Bros.	18,475	0	0
Perry & Co.	18,362	0	0
Ashby Bros.	18,280	0	0
Stephens & Bastow, Bristol	18,000	0	0

For alterations to 39 and 41, Brompton-road, for Mr. C. E. Webb. Mr. George Edwards, architect. No quantities:—

Green	£1,111	0	0
Longmire & Burge	1,090	0	0
Sanders	930	0	0
Scharien & Williams	836	0	0
Scrivener & Co.	820	0	0
Stimpson & Co. (accepted)	775	0	0

For alterations to 2A, Exhibition-road, for Mr. W. Follett, Mr. George Edwards, architect:—

Green	£319	0	0
Stimpson & Co.	£305	0	0
Wilkins	274	0	0
Hogben & Co. (accepted)	260	0	0

For alterations and additions to National School, Stapleton. Mr. J. Payne Curtis, C.E., architect, Sutton, Surrey. Quantities supplied by the architect:—

				Boundary Wall.		
Pitt	£465	0	0	.....	—	
Green	451	5	9	.....	£37	15 3
Eastabrook	436	0	0	.....	41	0 0
Sharp & Graham	435	0	0	.....	—	
Gowitt	430	0	0	.....	42	0 0
Cowlin	420	0	0	.....	39	0 0
Veals	419	0	0	.....	31	0 0
Hayes	403	7	0	.....	45	0 0
Case	380	16	0	.....	39	0 0
Richards	380	0	0	.....	47	0 0
J. Tyley	370	0	0	.....	—	
Humphreys	365	0	0	.....	41	0 0
H. Tyley (accepted)	345	0	0	.....	34	0 0
Downs	340	0	0	.....	38	8 0

For pulling down and rebuilding Nos. 12, 13, and 14, Rathbone-place, Oxford-street, for Messrs. J. Brinsmead & Sons. Messrs. Karslake & Mortimer, architects, 5, Great Queen-street, Westminster:—

Gregory & Bruce	£6,782	13	3
Chappell	6,024	11	0
Steed Bros.	5,965	19	9
Toms	5,731	0	0
Outhwaite & Son	5,678	0	0
Patrick & Son	5,489	0	0
Lawrance	5,407	0	0
Mark Manley (accepted)	5,392	0	0

For new pavilion, for the Gloucester Cricket Club. Mr. J. P. Moore, architect. Quantities supplied:—

W. Fream, jun.	£760	0	0
Jos. Sims	748	0	0
W. Rew	740	0	0
Gloucester Wagon Company	739	0	0
W. Wibby	724	0	0
D. C. Jones & Co.	694	0	0
J. Meredith	664	0	0
W. Wingate & Sons (accepted)	660	0	0
A. Gyde	653	0	0

For erecting six houses and shops, Victoria-road, Peckham, for Mr. F. Austin. Mr. James Buckland, architect:—

W. Smith, Camberwell (accepted)	£2,407	0	0

For erecting stables and alterations to residence, Wickham-road, Lewisham-road, for Mr. G. R. Higgins. Mr. R. M. Shaw, architect:—

McLachlan & Sons	£1,140	0	0
Colls & Sons	809	0	0
Crabb & Son	789	0	0
W. Smith, Camberwell (accepted)	729	0	0

For the erection of a warehouse (No. 1) in Baldwin's-gardens, Gray's-inn-road, for Mr. Frederick Sage. Mr. A. Bedborough, 18, Abingdon-street, Westminster, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

Geo. Parker, Peckham (accepted)	£1,924	0	0

For the construction of roads and footpaths, and laying in pipe sewers, and works in connexion therewith, on the Beddington Park Estate, Mitcham, Surrey, for the House Improvement and Supply Association, Limited. Mr. A. Bedborough, architect. Quantities supplied by Messrs. R. L. Curtis & Sons:—

	Roads and Sewers.	Aberdeen Granite Curbing.
W. Jenner, Sutton	£3,560 16 0	£1,189 14 6

Accepted.

For two houses, Dixon-street, Gilberts-hill, New Swindon, for Mr. E. Lay:—

Pettifer	£345	0	0
Barrett	335	0	0
Kent	325	10	0
Wiltshire	320	0	0
Turvey (accepted)	306	0	0
Henley	300	0	0

Received by the Corporation of Leicester for the deepening and widening of the River Soar and the Leicester Navigation, including concrete towing-path walls, the construction of a new stone weir and works in connexion therewith [according to plans and specifications of Mr. J. Gordon, C.E., Borough Surveyor. Quantities prepared and supplied by the Borough Surveyor:—

J. Jackson, London	£20,827	2	9
Small & Sons, Dewsbury	20,748	15	2
A. Palmer, Birmingham	18,592	1	10
Geo. Lawson, Glasgow	18,346	0	0
S. & W. Pattinson, Sleaford	16,349	0	0
Foster & Barry, Scarrington	15,174	0	0
G. B. Godfrey, Hull	15,132	10	0
S. W. Pilling & Co., Manchester	14,762	18	10
Whittaker Bros., Hosforth	14,200	0	0
Kellett & Bentley, London*	13,699	18	5

* Accepted.

For residence at Priest Hill, Old Windsor. Messrs. Charles J. & C. Herbert Shoppee, 61, Doughty-street, architects:—

G. Smith & Co.	£10,037
Colls & Sons	9,945
W. Brass	9,940
Burman & Sons	9,831
Langmead & Way	9,817
Watson	9,646
E. Lawrance	9,583
Ashby Bros.	9,339
Goddard & Sons	9,280
Stephens & Bastow	9,229
Hann & Co.	8,590

Dwelling House for Crawford Barlow, Esq., Tooting Bec Gardens, Streatham. Mr. F. Wheeler, architect:—

Hill Bros. (accepted)	£2,050

For rebuilding Nos. 9, and 10, Charlotte-mews, Tottenham-steeet, W., for Mr. J. A. Deintze. Mr. J. Shelley Birch, architect:—

Baylis	£1,988
Sabey	1,968
Swain	1,797
Scott	1,737
Cooper	1,698
Drew	1,690
Hensman	1,650
J. Rider Hunt	1,641
Bolding (accepted)	1,567
T. Ennor Julian & Co.	1,535
D. D. & A. Brown	1,449

For the extension of the West Ham Union House, Leytonstone, contract No. 4. Mr. Lewis Angell, architect. Quantities by Messrs. R. L. Curtis & Son:—

J. W. & J. Neave	£5,790	0	0
Carpenter & Poole	4,777	0	0
Priestley & Gurney	4,600	0	0
Reed	4,575	0	0
Kingerley	4,395	0	0
Parker	4,350	0	0
Nightingale	4,281	0	0
Webb	4,250	0	0
Morter	4,163	0	0
Gregar	4,137	0	0
Horlock	3,900	0	0
Cox (accepted)	3,894	0	0
Russell	3,490	0	0

Accepted for Reform Club, Delph, Saddleworth, Yorkshire. Mr. Alexander Banks, architect, Rochdale-road, Oldham-lane:—

Charles Winterbottom Delph (excavating, stonework, brickwork, and concreting).
T. Wood, Delph (carpenter's, joiner's, and iron-founder's work).
J. C. & W. Shaw, Delph (slating and tiling).
John Hudson, Upper Mill, Saddleworth (plumbing, glazing, and painting).
Whitehead Brothers, Dobcross, Saddleworth (plastering).

For additions to the Chestnuts, Denmark Hill, for Mr. A. Stedall. Mr. George Edwards, architect:—

Green	£540	0	0
Stimpson & Co.	378	0	0
Goad (accepted)	309	0	0

For reinstating, after fire, No. 138, Upper-street, Islington, for the Fire Insurance Office:—

W. Balaam, Trinity-street, Borough*	£300	0	0

* Accepted.

For the alteration and reconstruction of certain sewers in the Holborn district, for the Holborn District Board o Works. Mr. Lewis H. Isaacs, surveyor to the Board:—

John Mowlem & Co.	£1,870	0	0
Bell	1,798	0	0
Harris	1,790	0	0
Marshall	1,740	0	0
Pizzey	1,700	0	0
Killingback (accepted)	1,635	0	0

For building two houses and shops on the Leyton Park Estate, Leyton. Messrs. Wilson, Son, & Aldwinckle, architects, 2, East India-avenue:—

Ward	£1,225	0	0
Wood	959	0	0
Ford & Anderson (accepted)	900	0	0

For additions of shops upon the forecourts and other alterations, works and repairs, to the houses, Nos. 226 & 228, Southwark Park-road, for Mr. J. J. Riches. Mr. E. Crosse, 32, Bermondsey-square, architect:—

T. F. Ashton, Bermondsey	£330	0	0
J. Bullers	320	0	0
J. Almond (accepted)	315	0	0

For alterations and additions to Swarland Hall, Swarland, Northumberland, for Mr. Hugh Andrews. Mr. Ed. Jno. May, architect. Quantities by Mr. R. C. Gleed:—

J. & W. Lowry, Newcastle-on-Tyne	£6,030	0	0
R. Robson & Son, Durham	5,918	0	0
W. Scott, Newcastle-on-Tyne	5,780	8	11
Reid & Son, Newcastle-on-Tyne	5,458	0	0
R. Carse & Son, Acklington	5,320	0	0
Green & Douglas, Acklington	4,918	10	0
R. Saunderson, Durham	4,889	10	0

For completing eleven houses at Royal-road, Teddington, for Messrs. Saunders & Co. Mr. R. Evans, architect:—

C. Beach	£1,819	0	0
W. Bell	1,410	0	0
Feldous	1,390	0	0
Aviss	1,249	0	0
Alderidge & Gorvey	1,165	0	0
C. Dearing & Son	1,038	0	0
Holdstock	962	0	0
Terry	907	0	0

For works to Buccleuch House, Surbiton. Messrs. William Reddall & Son, architects, 10, South-street, Finsbury:—

Woodward	£840	0	0
Adkins	773	10	0
Scase & Son	636	0	0

For general repairs, &c., 63, Albert-street, Regent's Park, for Mr. G. D. Brown. Mr. J. H. Martin, architect:—

Roads	£141	13	0
A. & J. W. Baldwin	135	15	0
H. Barter	134	15	0
Durnford	134	15	0
Scowen (accepted)	111	0	0

For three houses and shops, Church End, Finchley. Messrs. Brooking & Nelson, architects:—

Royal (accepted)	£1,640	0	0

For completing four houses in Leicester-road, East End' Finchley, for Mr. W. Patterson:—

Royal (accepted)	£690	0	0

For proposed presbytery for the Rev. Canon Applegath, Alma-road, Windsor. Messrs. Byrne & Wilmot, architects, 303, Strand, and Windsor. Quantities by the architect, Mr. P. J. Byrne:—

Smith & Son, London	£1,797	0	0
Watson, Ascot	1,730	0	0
Lang, London	1,695	0	0
J. Higgs, London	1,677	0	0
Jackson & Todd, London	1,630	0	0
Ham & Co., Windsor	1,550	0	0
Kelly, Windsor	1,549	0	0
Woodbridge, Maidenhead	1,549	0	0
Bishop, Windsor (too late)	1,545	0	0
Willis, Windsor	1,536	0	0
Pither, Sunninghill	1,534	0	0
Ashfold	1,474	0	0
Oades & Sons, Egham	1,398	0	0
Akery, Windsor	1,340	0	0

For alterations, &c., to school, Deptford-road, for the School Board for London. Mr. E. R. Robson, architect:—

Atherton	369	0	0
Kirk & Randall	362	0	0
Jerrard	354	0	0
Oldrey	326	0	0

For alterations and additions to School in Kinder-street, Old Kent-road, for the School Board for London. Mr. E. R. Robson, architect:—

Lathey, Bros.	£989	0	0
Good	882	0	0
W. Shurmur	873	0	0
Jerrard	843	0	0
F. Higgs	824	0	0

For alterations, &c., to Nos. 16 and 18, Kingsland-road. Mr. C. Dunch, architect:—

Taylor	£537	0	0
B. T. Wood	520	0	0
Woodward	515	0	0
Palmer	514	0	0
W. Shurmur	493	0	0

For the construction of stoneware pipe sewers in roads at Park End, Bromley, Kent, for the Bromley Local Board. Mr. Hugh S. Cregeen, surveyor:—

E. Peill & Sons	185	0	0
T. Lansbury	170	0	0
R. Stockwell	165	0	0
Davis & Attwood (accepted)	150	5	0
T. Lawrence	150	0	0

For the Perry-Watlington Memorial Convalescent Home, to be erected at Clacton-on-Sea, Essex. Mr. Reed. Chancellor, architect, 8, Finsbury-circus, London, and Chelmsford. Quantities prepared by Messrs. R. L. Curtis & Sons:—

Hoskings	£3,415	0	0
Morter	2,915	0	0
Gozzett	2,900	0	0
Dobson	2,880	0	0
Grimes	2,874	0	0
Brown	2,850	0	0
Wood	2,690	0	0
Saunders (accepted)	2,684	0	0

For alterations to residence, Brockhurst, Gosport, for Mr. James Carter. Mr. Richard Peters, Wool Exchange, Coleman-street, E.C., architect:—

Julian & Co.	£330	0	0
Cantle	296	0	0
W. Rapley (accepted)	244	0	0

For proposed reredos in the parish church of Micheldever, Hants, for the Earl of Northbrook. Messrs. Colson & Son, architects, Winchester:—

Cox & Son, London	£200	0	0
T. Earp, London	149	0	0
Harry Hems, Exeter (accepted)	100	0	0

For roads and pipe sewers at Lime Hill, Walthamstow:—

Peill	£1,480	0	0
Woodham	1,355	0	0
Dunmore	1,212	0	0
Bloomfield	1,201	11	6
Pizzey	1,197	0	0
Wylson (accepted)	1,160	0	0
Keeble	1,160	0	0
Harris	1,150	0	0
Jesse Jackson	1,088	0	0

For erecting a house and stabling at Egham. Messrs. Notley & Trollope, architects:—

Scott, London (accepted)	£2,200	0	0

For additions and alterations to premises, Store-street, Stratford, Essex, for the Stratford Co-operative and Industrial Society, Limited. Mr. Henry Poston, Belle Vue, Earlham-grove, Forest Gate, Essex, architect. Quantities by the architect (exclusive of fittings and buildings on land recently acquired):—

G. J. Hoskings	£6,038	0	0
R. Abraham	5,879	0	0
North Bros	5,870	0	0
M. Patrick & Son	5,447	0	0
T. E. Julian & Co.	5,160	0	0
Jackson & Todd	5,150	0	0
J. Morter (accepted)	4,890	0	0

For the erection of Congregational church, Stormont-road, Lavender-hill. Mr. T. Heygate Vernon, architect. Quantities by Messrs. Mann & Saunders:—

Titmas	£5,189	0	0
Candler	5,000	0	0
Holloway	4,980	0	0
Rider & Son	4,978	0	0
Gregory	4,950	0	0
Stimpson & Co.	4,830	0	0
F. Higgs	4,520	0	0

For Charterhouse Schools, Godalming, Surrey. Mr. A. Blomfield, architect. Quantities by Messrs. Gardiner, Son, & Theobald:—

Holland & Holland	£12,380	0	0
Thompson	12,380	0	0
Grimwood	12,012	0	0
Dove Bros.	11,375	0	0
Parmenter	11,294	0	0
Goddard & Sons	10,764	0	0
Stevens & Bastow, Bristol (accepted)	10,264	0	0

For the erection of new Grand Stand and offices for the Leicester Club and County Racecourse Company, Limited, at Oadby, near Leicester. Mr. Chas. J. Bentley, architect, 4, Union-court, Old Broad-street. Quantities by Mr. W. E. Brown:—

				Deduct.*	
Condor, London	£7,820	0	...	£72	0
Turtle & Appleton, London	7,550	0	...	350	0
Clarke & Bracey, London	7,491	0	...	273	0
Lawrence, London	7,188	0	...	200	0
Cooke & Co., London	6,610	0	...	100	0
Herbert, Leicester	6,390	0	...	133	5
Hewitt, Derby	6,200	0	...	150	0
Holliday & Greenwood, London	6,097	0	...	75	0
Jewsbury, Leicester	5,653	0	...	15	0
Bass (accepted)	5,353	5	...	25	0

* Deduct if cement concrete is used throughout instead of brickwork.

New Road and Sewers.

Cooke & Co., London	£1,704	0	0
Maclean, Derby	1,697	0	0
Ball, London	1,657	15	6
Lea & Co., Leicester	1,479	0	0
Rowland Bros., Bletchley	1,450	0	0
Carter, London	1,373	17	6
Hutchinson & Son, Leicester*	1,061	4	0

* Accepted.

For repairs to Unicorn Hotel and premises, Leighton Buzzard. Mr. Frederick Gotto, architect, Leighton Buzzard:—

G. Saunders, Leighton Buzzard	£200	0	0
G. Andrews, Leighton Buzzard	176	0	0
A. M. Heath, Leighton Buzzard	172	10	0
J. Tutt & Sons, Leighton Buzzard	149	10	0

For the erection of one block of dwelling-houses, called Block E, on the Bridge House Estate, Brockley, London. Mr. W. Charles Evans, architect, 3A, Poet's Corner, Westminster Abbey:—

T. Gregory (accepted)	£1,780	0	0

For excavating and removing about 5,000 cubic yards of earth from Dudgeon's Wharf, Cubitt-town, for Messrs. Ingall, Phillips, & Co., being the first contract in connexion with the excavation for tanks. Mr. A. G. Collins, civil engineer:—

	Per Cubic Yard.		
H. Standen	£0	11	0
Martin & Co.	0	6	0
F. Cornish	0	5	0
W. Kew	0	4	9
Lowrie & Tucker	0	4	6
J. J. Rutty	0	4	6
W. Fenner	0	4	3
Thompson & Son	0	4	0
G. A. & A. Fuller	0	3	11
Colwell & Hazle	0	3	7½
H. Wilson	0	3	6
J. Ades	0	3	4
T. Pedrette	0	3	0
T. Huntly (accepted)	0	2	3

For making up the Havelock-road, Southall, forming footpaths, laying down drain, &c., for the Burial Board for Norwood, Middlesex. Mr. T. Newell, surveyor:—

P. J. Pound	£330	0	0
P. Bell	295	0	0
H. Wilson	290	0	0
G. Simmonds	285	0	0
E. W. Brown	266	0	0
S. H. Watkins & Co. (accepted)	222	0	0

For extension of warehouses, Millwall. Mr. Wm. Eve, architect:—

Higgs	£1,710	0	0
W. Shurmur	1,530	0	0
Salt	1,509	0	0
Downs	1,474	0	0
Harris & Wardrop	1,344	0	0
Crabb	1,310	0	0

For the erection of deaf and dumb school at Boundary Lane Schools, Lambeth Division, for the School Board for London. Mr. E. R. Robson, architect:—

Reading	£1,050	0	0
Good	1,010	0	0
W. Shurmur	963	0	0
T. Higgs	945	0	0
Boyce	940	0	0

TO CORRESPONDENTS.

M. P. B. (thanks, no).—W. E. A. (shall have attention).—G. V.—A. C.—S.—J. B.—L. D.—T. B. K.—E. P.—A. B.—Dr. P.—C. H. S.—W. de G. B.—L. & B.—W. Y. B.—Mr. M.—W. R.—J. S.—H. O'N. N.—P. S. W.—C. S. L.—F. E.—T. N.—C. B. O.—M. & O.—F. G.—C. J. B.—W. B.—W. & B.—E. A. O.—H. P. — H. J. J. & Sons.—J. H.—A. G. C.—W. E. M.—R. C. G.—A. B.—H. & Co.—W. R. & Sons.—F. C.—C. D. & Son.—T. F.—W. R.—P. & P.—H. S. C.—J. T.—J. H. M.—A. R.—W. S.—J. H. S.

Correspondents should address the Editor, and *not* the Publisher, except in cases of business.

All statements of facts, lists of tenders, &c. must be accompanied by the name and address of the sender, not necessarily for publication.

We are compelled to decline pointing out books and giving addresses.

NOTE.—The responsibility of signed articles, and papers read at public meetings, rests, of course, with the authors

NOTICE TO SUBSCIBERS.

CLOTH CASES for Binding the Numbers are now ready, price 2s. 6d. each; also

READING-CASES (Cloth), with Strings, to hold a Month's Numbers price 2s. each.

THE FORTY-THIRD VOLUME of "The Builder" (bound) is now ready, price Twelve Shillings and Sixpence.

SUBSCRIBERS' VOLUMES, on being sent to the Office, will be bound at a cost of 3s. 6d. each.

NOTICE TO ADVERTISERS.

Persons advertising in the *Builder* may have

REPLIES ADDRESSED TO THE OFFICE
46, Catherine-street, Covent-garden, W.C.,
FREE OF CHARGE.

Letters will be forwarded if addressed envelopes are sent, together with sufficient stamps to cover the postage.

CHARGES FOR ADVERTISEMENTS.

SITUATIONS VACANT, PARTNERSHIPS, APPRENTICESHIPS, TRADE, AND GENERAL ADVERTISEMENTS,
Six lines (about fifty words) or under ..... 4s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

Terms for Series of Trade Advertisements, also for Special Advertisements on front page, Competitions, Contracts, Sales by Auction, &c. may be obtained on application to the Publisher.

SITUATIONS WANTED.
FOUR Lines (about THIRTY words) or under ..... 2s. 6d.
Each additional line (about ten words) ..... 0s. 6d.

PREPAYMENT IS ABSOLUTELY NECESSARY.

*** Stamps *must not* be sent, but all small sums should be remitted by Cash in Registered Letter or by Money Order, payable at the Post-office, Covent-garden, W.C. to

DOUGLAS FOURDRINIER, Publisher,
Addressed to No. 46, Catherine street, W.C.

Advertisements for the current week's issue must reach the Office before THREE o'clock p.m. on THURSDAY.

The Publisher cannot be responsible for DRAWINGS, TESTIMONIALS, &c. left at the Office in reply to Advertisements, and strongly recommends that of the latter COPIES ONLY should be sent

TERMS OF SUBSCRIPTION.

"THE BUILDER" is supplied DIRECT from the Office to residents in any part of the United Kingdom at the rate of 19s. per annum, PREPAID. Remittances payable to DOUGLAS FOURDRINIER, Publisher, 46, Catherine-street, W.C.

Best Bath Stone.
WESTWOOD GROUND,
Box Ground, Combe Down,
Corsham Down,
And Farleigh Down.
RANDELL, SAUNDERS, & CO., Limited,
Corsham, Wilts. [ADVT.

Bath Stone.
Facilities for selection and quality unequalled, having upwards of
350,000 Feet Cube
In Stock of all known descriptions.
PICTOR & SONS, Box, Wilts. [Advt.

Doulting Freestone and Ham Hill Stone of best quality, in blocks, or prepared ready for fixing. An inspection of the Doulting Quarries is respectfully solicited; and Architects and others are CAUTIONED against inferior stone. Prices, delivered to any part of the United Kingdom, given on application to CHARLES TRASK, Norton-sub-Hamdon, Ilminster, Somerset. — Agent, Mr. E. WILLIAMS, 73, Charlotte-street, Portland-place, W. [ADVT.

Doulting Freestone,
HAM HILL STONE,
BLUE LIAS LIME
(Ground or Lump),
Of best quality, supplied from their own Quarries and Kilns by STAPLE & HANN, Stoke, Ilminster. Agent, Mr. H. MITCHELL, 5, Augustus-road, Hammersmith, London, W. [ADVT.

Asphalte.
Seyssel, Patent Metallic Lava, and White Asphaltes.
M. STODART & CO.
Office:
No. 90, Cannon-street, E.C. [ADVT.

Asphalte.—The Seyssel and Metallic LAVA Asphalte Company (Mr. H. Glenn), Office, 38, Poultry, E.C.—The best and cheapest materials for damp courses, railway arches, warehouse floors, flat roofs, stables, cow-sheds and milk-rooms, granaries, tun-rooms, and terraces. [ADVT.

Immense quantities of
DRY WAINSCOT,
DRY MAHOGANY,
DRY WALNUT,
in all thicknesses.
B. J. HUDSON & SONS,
Whitfield-st., W., and Great Peter-st., S.W.
London. [ADVT.

Smoky Chimneys.—"BARNET, Jan. 8th, 1883. DEAR SIRS,—We are pleased to say that the Cowl you put on chimney at —— appears to have cured its smoking, and we now want you to fix fourteen more, the same as last .... to Nos. 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 15, 16, and 17. Messrs. EWART & SON." BROOKING & NELSON.
The successful Cowl was the "Empress" Smoke Cure. [ADVT.

MICHELMORE & REAP,
Manufacturers of
CHARLES COLLINGE'S PATENT.
COLLINGE'S PATENT HINGES,
LEVER, SCREW, & BARREL BOLTS,
Self-Acting "FALL DOWN" GATE STOPS,
and IMPROVED GATE FITTINGS of every Description.
36A, BOROUGH ROAD
Discount to Builders.
Illustrated List two stamps.
LONDON, S.E.

ZINC ROOFING.
F. BRABY & CO.,
LONDON, LIVERPOOL, GLASGOW.
VIEILLE MONTAGNE BRAND.
NO SOLDER.
NO EXTERNAL FASTENINGS.
PARTICULARS ON APPLICATION. CHIEF OFFICE: 360, EUSTON ROAD, LONDON.